EPC COMMISSION
MINUTES & AGENDA

MONTH May

YEAR 1988

Council had small personal computers of various brands. The Geological Survey had several IBM P.C.s and a scientific mini-computer.

Because the preponderance of equipment was IBM, the DNR decided to standardize on IBM as much as was reasonably possible. The NBI P.C.s and the older word processing equipment was traded to other departments or discarded. The Word Processing Center was equipped with an IBM token ring network.

At the point of reorganization, the Director and the Division Administrators were all equipped with a computer terminal or a personel computer which emulates a computer terminal. This enabled the use of the PROFS system, available on the state's mainframe, for communications, scheduling and document processing.

Through a variety of supplemental grants, the EPA has facilitated the procurement of a number of additional personal computers. These have been brought to the EPC for review and approval.

Currently, the DNR has sixty-nine IBM personal computers, twenty-nine other personal computers of various brands, a Perkin-Elmer mini-computer, and a number of computer terminals.

The DNR sees computers, both mainframe and P.C.s, as a significant way to increase staff productivity. Much of the staff reduction as a result of reorganization has been compensated for with P.C.s and the PROFS system.

This view has recently been enforced by the Governor's office. In a meeting of department heads in February, the Governor strongly encouraged more and better use of automation as a means of increasing productivity. A state planning task force has been established to improve the use of automation in state government. DNR is represented on that planning task force.

The Governor also mandated that, at a minimum, each state department director be equipped with a computer terminal in order to facilitate communications with the Governor's office using the PROFS system.

It is the intent of the Environmental Protection Division to make personal computers readily available to all of EPD staff. With the UST computer procurement item, each regional office will have three personal computers. These personal computers are also hooked directly to the state's mainframe. Ultimately, most professional staff in EPD will have either a personal computer or a terminal, depending on their needs.

The DNR is currently in the process of equipping all of the bureau chiefs with either a terminal or a personal computer that emulates a terminal so they can have access to PROFS. The next step will be equipping other major field units with personal computers, both for local use and for communications.

All purchases of computers and software have to be approved through the state's Centralized Purchasing Division and the state's Information Services Division (Central Data Processing). This involves a committee approach that evaluates the proposed equipment and considers the purchase within the context of the overall state approach to automation. In addition, all computer

Mrs. Bender expanded on details of the report. Discussion followed regarding a statewide solid waste comprehensive plan.

This was an informational item; no action was required.

MONTHLY REPORTS

Allan Stokes, Division Administrator, Environmental Protection Division, presented the following item.

The following monthly reports are enclosed with the agenda for the Commission's information.

1. Rulemaking Status Report

2. Variance Report

3. Hazardous Substance/Emergency Response Report

4. Enforcement Status Report

5. Contested Case Status Report

Members of the department will be present to exoand upon these reports and answer questions.

Mr. Stokes reported that, in regards to shredder fluff at landfills, staff is preparing a department position statement clarifying that shredder fluff can be disposed of in sanitary landfills if it is tested and does not exceed levels that would put it as a hazardous waste or violate PCB levels. It will also clarify that the appliances themselves could be disposed of in landfills and that if the capacitors are taken out of the appliances and weigh three pounds or less, are not leaking, and are overpacked they can go into the landfill. Consideration is being given to sampling some of the capacitors to determine which ones have PCBs in them. Staff will try to work with some of the appliance manufacturers to get a list of models, years, or makes which would have the questionable materials in them.

DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION COMMISSION
CONTESTED CASES
MAY, 1988

DATE RECEIVED	NAME OF CASE	ACTION APPEALED	PROGRAM	ASSIGNED TO	STATUS
10-17-86	City of Bevington	Administrative Order	WW	Hansen	Hearing rescheduled for 5-17-88.
1-25-86	[illegible] Soil Service	Administrative Order	WW	Landa	Hearing continued; cleanup study progressing.
4-12-86	ADM - Clinton	Administrative Order	Air	Landa	Hearing continued
10-29-86	[illegible]-Kloop Company, Inc.	Administrative Order	AQ/WW/SW	Landa	Appealed to Commission.
12-05-86	City of [illegible]	Administrative Order	WS	Hansen	Hearing continued; [illegible]tlement close.
12-11-86	Eloise Moore	Permit Condition	FP	Clark	Briefing in progress.
12-24-86	Francis Wemberlin	Administrative O[illegible]	FP	Clark	Briefing in progress.
5-12-87	Iowa City Regency MHP	Administrative Order	WW	Hansen	Hearing held 11-05-87
5-28-87	Bianchi-Meyrat Lagoon (Mark Smith)	Administrative Order	WW	Kennedy	Settled
6-08-87	Willow Creek Dam/Zarbia et.al	Permit Issuance	FP	Clark	Negotiating before filing.
6-11-87	Thomas Lawson	Administrative Order	FP	Clark	Awaiting decision.
6-18-87	Great Rivers Co-op	Administrative Order	HC	Landa	Clean-up proceeding.
8-17-87	City of Wapello	Administrative Order	WW	Hansen	DNR met with City. 5/88 EPC
9-17-87	Brodert, Kevin and Ernest	Administrative Order	AQ	Landa	Hearing rescheduled for 5/27/88.
10-22-87	University Park	Administrative Order	WW	Hansen	Hearing rescheduled for 5/19/88.
12-07-87	Stan Moser	Administrative Order	SW	Murphy	Proposed decision 4-12-88.
12-11-87	Fisher Landfill	Permit Revocation	SW	Kennedy	Settlement negotiations.
12-18-87	Delaware Co. Cons. Cit. (IDP)	Permit Issuance	WS	Clark	Appears it will be dismissed.
12-21-87	Hardin County SLF	Administrative Order	SW	Kennedy	Settled.
12-31-87	City of Tipton	Administrative Order	WW	Hansen	Received information.
12-31-87	Wilfred McFee	Administrative Order	WW	Murphy	Negotiating before filing.
1-15-88	First Iowa State Bank	Administrative Order	SW	Kennedy	Continued to 6-14-88.
1-22-88	IBP, Fort Dodge	NPDES Permit	WW	Hansen	Negotiating before filing.
2-04-88	Beaverdale Heights, Woodman; Westwood Hills	Administrative Order	SW	Landa	Plans approved. Continued pending resolution.
2-08-88	Warren County Bounton Bank	Administrative Order	UT	Landa	Investigation begin.
2-10-88	Lehigh Clay Products	Administrative Order	HC	Landa	Appealed; revised plans approved.
2-22-88	Amana	Tax Certification Denial	AQ/SW	Landa	Appealed. Request for additional information.
2-25-88	South Central Iowa Landfill Agency	Administrative Order	SW	Landa	Settled.
2-29-88	Lynn Wennenga Feedlot	Administrative Order	WW	Murphy	New case.
3-01-88	Cloyd Poland	Administrative Order	FP	Clark	Awaiting Pe[illegible]tion filing.
3-03-88	Motel Grinnell	Administrative Order	WW	Hansen	Hearing co[illegible]inued. Negotiating.
3-08-88	Benton County Care Facility	Administrative Order	WS	Murphy	Settled.
3-27-88	Otter Creek Station	Administrative Order	WS	Murphy	Settled.
4-13-88	Land O'Lakes, Inc.	Administrative Order	WW	Murphy	New case.
4-28-88	Harry Brooks, Engelena Brooks, Gordon Brooks	Administrative Order	WW	Murphy	New case.

10. Benzene.
11. Carbon tetrachloride.
12. 1,2-Dichloroethane.
13. Trichloroethylene.
14. 1,1,1-Trichloroethane.
15. 1,1-Dichlorethylene.
16. Paradichlorobenzene

e. Routine quarterly watering sampling. After the first year, each monitoring point must be sampled quarterly as specified in the facility's operation permit and analyzed for the following parameters.

1. Chloride.
2. Specific conductance (field measurement).
3. pH (field measurement)
4. Ammonia nitrogen.
5. Iron, dissolved.
6. Chemical oxygen demand.
7. Temperature (field measurement).
8. Any additional parameters deemed necessary by the department.

f. Routine annual water sampling. After the first year, one sample per year from each monitoring point collected in a quarter specified in the facility's operation permit must be analyzed for the following parameters.

1. Total organic halogen.
2. Phenols.
3. Any additional parameters deemed necessary by the department.

103.2(5) Laboratory procedures.

The owner or operator of the solid waste facility must have the ground and surface water samples analyzed only by laboratories that are certified by the state of Iowa to perform public water supply sample analyses.

All analyses of parameters not covered in the Safe Drinking Water Act (SDWA) must be performed according to methods specified in SW-846 or approved by the United States Environmental Protection Agency. Any analytical method used on non-SDWA parameters deviating from those specified in SW-846 or approved by EPA must be approved by the department.

All analyses must be recorded on forms which, in addition to the analytical results, show the precision of the data set, bias, and limit of detection.

103.2(6) Analysis of sampling data. For each parameter analyzed during the first year of operation of the hydrologic monitoring system, as listed in paragraph 103.2(4)"d" above, determine the mean and standard deviation (see Appendix A, Mean and Standard deviation Calculation) for each upgradient monitoring well using the first year of data. For routine quarterly monitoring parameters, as listed in paragraph 103.2(4)"e" above, mean and standard deviation should be recalculated annually using all available analytical data.

If the analytical results for a downgradient monitoring point do not fall within the control limits of two standard deviations above the mean parameter(s) level in a corresponding upgradient monitoring point, the owner or operator shall submit this information to the department within 30 days of receipt of the analytical results. If the analytical results from an upgradient monitoring point do not fall within two standard deviations of the mean parameter(s) level for that monitoring point, the department shall also be notified within 30 days.

103.2(7) Additional sampling. The department will determine if additional sampling is warranted, after receipt of information indicating a possible release as required in subparagraph 3. above. The department may require any

b. If the uppermost aquifer is less than 50 feet below the water table, an additional water level monitoring point shall be located at the top of the aquifer.

c. If the uppermost aquifer is more than 50 feet below the water table, additional water level monitoring points shall be placed at depths of 30 feet and 50 feet below the water table

d. If required, the one deeper soil boring into bedrock shall be used as a site for one well cluster. Water table monitoring points in this cluster shall correspond to the other well cluster used for a profile. In addition, water level monitoring points shall be placed at the bottom of the boring and, if possible, at the top and bottom of the uppermost aquifer.

Groundwater level measurements should be made after the water levels have stabilized in the monitoring point; at least 24 hours after completion of the monitoring well, installation of the piezometer, or placement of the boring. Each set of water level measurement shall be made in as short a time frame as possible; within an eight-hour period maximum.

110.4(2) In-situ permeability tests. In-situ permeability tests shall be conducted on each monitoring well and piezometer in each well cluster.

a. Pumping test. If more than one monitoring point is located in the uppermost aquifer, a pumping test should be conducted at one or more upper aquifer monitoring point. A pumping test involves pumping at constant rate from one well while observing water levels in other wells. The pumping rate should be as high as possible without dewatering the well. Water level measurements in other uppermost aquifer wells should be measured at frequent intervals near the start of the test and then at progressively longer intervals (e.g., one-minute intervals to 10 minutes, five-minute intervals to an hour, 15-minute intervals to two hours, and half-hour intervals thereafter). Continuous water level recording is preferable. Water levels in wells not located in the uppermost aquifer should be recorded throughout the test at regular intervals (e.g., every half hour). Water levels in all wells should be measured 24 hours prior to the test and just before the test. The test duration should be at least four hours. Longer tests may be necessary if other uppermost aquifer monitoring points are slow to respond.

b. Bail and slug tests. Monitoring wells and piezometers located in materials with low permeabilities should be tested using bail or slug tests. These tests involve rapidly removing or adding a known volume of water to a well and then recording water levels in the well as it recovers to its original level. Typically, the necessary frequency of measurements will be similar to that required of pumping tests. In materials of very low permeability, less frequent measurements are necessary; and in materials of higher permeability, more frequent measurements may be necessary.

567--110.5(455B) Hydrologic monitoring system planning report requirements. The hydrologic monitoring system planning report shall contain a description of field investigations and presentation of results including a description of the field and laboratory testing methods; a presentation of the test results and field measurements; a reasonable effort to inventory all active, unused, and abandoned wells within one mile of the facility shall be made; and the identification of all public water supply wells and wells with water withdrawal permits pursuant to 567--Chapters 50, 51 and 52 within three miles of the facility. Well logs, other available information on well construction, static water levels, and usage shall be obtained. The well inventory should be based on thorough reviews of state and local collections of well logs and, when possible, interviews or surveys of well owners.

ponds or streams so as to cause environmental harm in the processes of drilling or well development.

c. The owner or operator must ensure that, at a minimum, the following well design and construction log information are retained at the site and a copy of this information sent to the department.

Date/time of construction;
Name and address of the driller;
Drilling method and drilling fluid used;
Soil sampling methods;
Surveyed location (±0.5 ft.);
Soil and rock classifications;
Field observations;
Well name/number;
Bore hole diameter and well casing diameter;
Well depth (±0.1 ft.);
Water level measurements;
Drilling and lithologic logs;
Casing materials, inside diameter and weight or wall thickness;
Screen materials;
Casing and screen joint type;
Screen slot size/length;
Filter pack material/size; (depths from __ to __)
Filter pack volume;
Filter pack replacement method;
Sealant materials; (depths from __ to __)
Sealant volume;
Sealant placement method;
Grouting schedule and materials;
Surface seal design/construction; (depths from __ to __)
Type of protection well cap;
Ground surface elevation (±0.1 ft.)
Well cap elevation (±0.01 ft.)
Top of casing elevation (±0.01 ft.); and
Detailed drawing of well (include dimensions).

110.11(8) Well development. Prior to use of the monitoring well for water quality monitoring purposes, well development is required to ensure the collection of representative groundwater samples. Procedures used in well development involve using a surge block, bailing or surging by pumping to produce a movement of water at alternately high and low velocities into and out of the well screen and gravel pack in order to loosen and remove fine materials. Development of low hydraulic conductivity wells may require the circulation of water down the well casing, out through the screen and gravel pack, and up the open bore hole prior to the placement of grout or seal in the annulus. Any additional water used must be of a quality so as not to interfere with future groundwater quality determinations. Following surging, the well is pumped until the water does not contain sufficient quantities of suspended solids.

567--110.12(455B) Sealing abandoned wells and boreholes. Bore holes, piezometers and observation wells not used for groundwater monitoring must be sealed. Document in writing the location of the abandoned well or bore hole with reference to the landfill's coordinate system and method of sealing. The document must be retained at the landfill with a copy sent to the department.

accepting all types of solid wastes. Construction and demolition waste disposal sites should have less restrictive leakage and monitoring requirements than now proposed.

RESPONSE: We recognize and share the concerns cited by this comment. It is our intention to evaluate and modify design criteria for landfills in future rule revisions. When adequate information is obtained to allow a comprehensive effort in this regard, we will proceed.

RECOMMENDED ACTION: No change.

13. (1)(2)(5) **COMMENTS:** Re: Section 103.2(1)1.1 (as amended) The form of Darcy's Law is technically incorrect and contains non-standard or no longer current hydrogeological terminology. i.e.,

(per Repa) V=K [(h1-h2)/L]A/n
where, V=leakage rate, ft/day
K=hydraulic conductivity
h1-h2=head difference across the liner or geologic formation, ft
L=thickness of the liner or geologic formation
A=unit area, 1 sq.ft.
n=porosity

(per Crane, et al) Q=K[(h2-h1)/L]A
where, Q=cubic feet of liquid per day per square foot
K=vertical hydraulic conductivity of the most restrictive soil unit below the base of the fill, ft/day
h2=maximum water table elevation affecting downward leakage
h1=lowest elevation of most restrictive soil unit
L=minimum thickness of most restrictive soil unit
A=unit area, sq.ft.

Also would permeability of synthetic liners be given a value of "zero".

RESPONSE: The equation as shown in the proposed rule is unchanged in form from the existing rule. There appears to be come disagreement as to what form may be more correct and the question of synthetic liners was not considered when the equation was originally incorporated into the rule. We would propose to take up both questions in the near future in subsequent rule making activities for implementation of the Ground Water Protection Bill.

RECOMMENDED ACTION: No change.

14. (1)(2)(3)(5)(6) **COMMENTS:** Re: Section 103.2(3) (as amended) Implementation of the approved monitoring plan within 60 days of such approval is unrealistically short under winter conditions. Also the lead time after notification should be increased from 90 to 120 days. It is

sampling point may interfere with sample results. It is recommended that the specific method for determining this information be developed by a qualified hydrogeologist based on site specific, laboratory data, and well construction methods.

RESPONSE: The requirement should have been stated as "and" rather than "and/or". Pumping tests are required on monitoring points located in the aquifer where permeabilities are expected to be sufficient to sustain the test. Recording the pumping rate is a generally accepted practice for this permeability.

RECOMMENDED ACTION: Change the reference from "and/or" to "and" in the first sentence.

27. **(2) COMMENTS:** Re: Section 110.5 (as proposed) The inventory of abandoned and unused wells is considered unachievable and should be eliminated.

RESPONSE: We acknowledge the difficulty associated with this task. However, we feel that the information is of value if attainable.

RECOMMENDED ACTION: Change the phrase to read as follows: a reasonable effort to inventory all active, unused, and abandoned wells within one mile....

28. **(2) COMMENTS:** Re: Section 110.6(2) (as proposed) It is felt that the list of items described is inappropriate based on the data collected. If the borings are performed as required, in some instances thickness and depth of the aquifer may not be known.

RESPONSE: The data should be collected so as to provide a proper hydrogeologic description of the site. That is the entire point of this exercise. Obviously, data beyond the minimum requirements may be needed. This is why the requirements are minimum.

RECOMMENDED ACTION: No change.

29. **(2) COMMENTS:** Re: Section 110.7 (as proposed) It is suggested that a definition for "ground water runoff" be provided. If ground water underlying the site intercepts a river several miles downstream, the appropriateness of the surface water samples is questioned.

RESPONSE: This is an obscure reference and should be replaced by the term ground water discharge.

RECOMMENDED ACTION: Delete the term "ground water runoff" and insert the term "ground water discharge" in the referenced section.

30. **(4) COMMENTS:** Section 110.8 (as proposed) It is suggested that an additional procedure be required to describe the collection of representative samples from the monitoring wells for volatile organic compounds that may stratify because of density variations.

available for your review. The parties will be available to argue their respective positions and respond to your questions. You may then affirm the Proposed Decision, or modify or reverse it, substituting your own findings of fact and conclusions of law based on your conclusions from your review of the record and legal argument.

Mike Murphy explained the Commission's options in review of the case.

Mark Landa, Legal Bureau, explained in detail the issues of this case. One of the main points was that a fire on the disposal site burned and smoldered for approximately a three-month period, some of the time during a very wet period. The burning waste was accumulated by these companies over a 20-year period. Mr. Landa described materials which burned and the resulting toxic substances released into the air and groundwater. Each of these compounds were established to be a hazardous substance and a hazardous waste as defined by federal and state law. The department, on two occasions, sampled leachate being released from the site and took one soil sample. All of the samples showed the presence of VOCs consistent with the releases from the burning waste contained in the site. The department ordered the companies to conduct a site investigation at the disposal site and to abate or eliminate the hazardous condition at the site. Additionally, the department ordered the companies to cease a prohibited discharge, to divulge the location of the disposal of waste removed from the site, to cease further disposal at the site, to cease open burning, and to pay a penalty of $1,000. Mr. Landa covered evidence of six witnesses along with exhibits from the four and one-half day hearing. He stated that Mr. Donald Sandifer, EPA Environmental Engineer, testified that benzene, toluene, styrene, ethylbenzene and xylene were present at the site, and were all hazardous substances. Further testimony revealed that Mr. Nichols removed ten truckloads of waste, and upon questioning, he refused to state where he had taken the waste. Mr. Landa stated that EPA agrees with what the department is ordering the companies to do, and they are not taking any action solely because the department is proceeding properly.

<u>Lewis Nichols</u>, representing Handi-Klasp Company, Inc. and Royal Products Company, Inc., addressed the Commission stating that some of the DNR tests were not proper or valid. He stated that neither of the two companies have ever put any liquid or hazardous materials into the landfill on the company property. Mr. Nichols stated that, in March of 1986, an accidental fire occurred in the landfill; and he further explained reasons why it took so long to remedy the situation. He added that it has not been established that the companies have a condition justifying a $125,000 expenditure. Mr. Nichols stated that Mr. Sandifer of the EPA told him that he found no hazardous waste observed in storage and it appeared none had been generated by either company. Mr. Nichols expanded on removal of the fill and not divulging where it was taken; questioning the validity of the department's sampling protocol and the second sample producing less than one part per billion; no health hazards involved; required permits; and the attitude of DNR personnel.

In conclusion, Mr. Nichols stated that the Iowa Code 455.307(1) authorized storing of the material on their premises. He stated that the department and EPA inspection found that no hazardous wastes were stored or generated by either company. The fire was a one-time, accidental incident with no other history of other occurrences. He stated that they immediately closed the

FY 1988 SUMMARY OF FUNDS

I. Estimated EPA Assistance Required			
A. Estimated assistance for projects			$35,584,160
B. Designated reserve for grant increases			3,536,798
C. Reserve for grant increases for alternative technology	FY 1988	$1,017,089	
	FY 1989	$ 543,988	1,561,077
D. Reserve for grant increases for innovative technology	FY 1987	$ 89,643	
	FY 1988	$ 155,425	
	FY 1989	$ 77,713	322,781
E. Reserve for state management assistance 205(g)	FY 1987	$1,314,048	
	FY 1988	$1,314,048	
	FY 1989	$ 657,024	3,285 120
F. Reserve for water quality management 205(j)(1)	FY 1988	$ 310,850	
	FY 1989	$ 155,425	466,275
G. Reserve for non-point source management 205(j)(5)	FY 1988	$ 310,850	
	FY 1989	$ 155,425	466,275
H. Reserve for advances of allowances (no need projected FY 1988)			________
Total grant needs			$45,222,396
II. Non-additive Set-Aside Reserve Funds			
A. Reserve for alternative systems for small communities	FY 1988	$1,243,400	
	FY 1989	$ 621,700	
		$1,865,100	
B. Quota for unsevered communities	FY 1988	$1,554,250	
	FY 1989	$ 777,125	
		$2,331,375	
III. Available Funds			
A. FY 73-86 Carryover (5/01/88)			$ 115,096
B. FY 1987 Allotment Balance (5/01/88)			1,414,043
C. FY 1988 Allotment Balance (5/01/88)			28,150,757
D. Anticipated FY 1989 Allotment			15,542,500
			$45,222,396

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (59) Priority Points (B8)	Applicant Legal Name County Name Street Address City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (C2) Auth/Fac. No. (32)	Grant Number Parent Project (B2)	Project Number (02, 01, 54) 03 - 0	Step (87) Type (04)	St Cert (A5)	Proj Desc (20)	Sml Comm (33)	Innov Elig Cost (F7) Altern Elig Cost (Y8)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (Y0-Y6)	Enf Req
0545 7.17	City of Randall Hamilton County Box 36 Randall IA 50231	UNSEWERED 190710001	C190716 01	C190716 02	4 C	P 880930	I Coll			687,900	378,340	IVA 376,800 IVB 311,100	D BT
0725 2.16	City of Waucoma Fayette County R R 2 Box 29 Waucoma IA 52171	UNSEWERED 191015001	C191287 01	C191287 02	4 C	P 880930	T Coll			674,600	371,030	I 247,800 IVA 426,800	BT D
0795 1.66	City of Parnell Iowa County Box 15 Parnell IA 52325	UNSEWERED 190668001		C191314 01	4 M	P 880531	T Coll	R	—— 27,026	538,400	296,120	I 187,148 IVA 351,25[illegible]	BT D
0835 1.60	City of St Olaf Clayton County City Hall St Olaf IA 52072	UNSEWERED 190769001		C191309 01	4 M	P 880930	T Coll	R	—— 178,100	320,900	176,490	I 158,100 IVA 162,800	BT D
0840 1.50	City of Harvey Marion County Main Street Harvey IA 50119	UNSEWERED 191029001		C191308 01	4 M	P 890331	T Coll	R	—— 485,000	612,500	336,870	I 199,000 IVA 413,500	E D
1035 .738	City of Lineville Wayne County Box 187 Lineville IA 50147	UNSEWERED 190483001	191280 01	C191280 02	4 C	P 880930	T Coll			1,[illegible]22,100	787 150	I 455,100 IVA 967,000	BT D

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (59) / Priority Points (H8)	Applicant Legal Name / County Name / Street Address / City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (C2) / Auth/Fac. No. (32)	Grant Number Parent Project (B2)	Project Number (02, 01, 54) 03 - 0	Step (87) / Type (04)	St Cert (A5)	Proj Desc (20)	Sal Comm (33)	Innov E. Cost (Y7) / Altern Elig Cost (Y8)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (Y0-Y6)		Enf Req
0150 650.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 65	3 C		I Four Mile Main Br			6,580,000	4,935,500	IVB	6,580,000	AY
0160 650.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 66	3 C		I,EB Highland Hills Phase 2			2,640,000	1,980,000	IVB	2,640,000	AY
0180 383.44	City of Iowa City Johnson County 410 E Washington Iowa City IA 52240	IA5225001	C190830 01	C190830 06	3 C		I			5,000,000	2,750,000	IVB	5,000,000	AY

REFERRALS TO THE ATTORNEY GENERAL (Continued)

J. R. Nylen (Sergeant Bluff)

James Combs stated that this case has been settled through a consent decree, but referral is needed to formalize the consent decree.

Motion was made by Catherine Dunn for referral to the Attorney General's Office. Seconded by Donna Hammitt. Motion carried unanimously.

Don Carsway (Linn County)

James Combs briefed the Commission on the history of this case.

Motion was made by Donna Hammitt for referral to the Attorney General's Office. Seconded by Catherine Dunn. Motion carried unanimously.

City of Lynnville

James Combs briefed the Commission on the history of this case.

Motion was made by Richard Timmerman for referral to the Attorney General's Office. Seconded by Catherine Dunn. Motion carried unanimously.

City of Mechanicsville

James Combs stated that the city has agreed to a consent decree, but referral is needed to formalize the consent decree.

Motion was made by Nancylee Siebenmann for referral to the Attorney General's Office. Seconded by Clark Yeager. Motion carried unanimously.

FINAL RULE -- CHAPTER 4, RULEMAKING PROCEDURES AND CHAPTER 5, PETITION FOR RULEMAKING

James Combs, Division Administrator, Coordination and Information Division, presented the following item.

The Commission is requested to adopt the attached rules dealing with rulemaking procedures and petitions for rulemaking. The Commission will be adopting by reference rules prepared by the Governor's Task Force on Uniform Rules. This procedure of adoption by reference has been recommended by the state government authorities over agency rules. This Commission approved notices of intended action in February, and no comments were received during the public notice period. There are no changes from the proposed rules, other than correction of a numbering error.

ENVIRONMENTAL PROTECTION COMMISSION [567]
Adopted Rule

Pursuant to the authority of Iowa Code sections 455A.6, 455B.105, 17A.3 and 17A.7, the Environmental Protection Commission of the Iowa Department of Natural Resources hereby adopts new Chapters 4, "Agency Procedure for

ADM-1-1-1
May 1988

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ENVIRONMENTAL PROTECTION COMMISSION
Wallace State Office Building
Des Moines, Iowa
May 16-17, 1988

equipment funded with federal funds must specifically be approved by the relevant federal agency.

The procurement of computers will be a significant component of the forthcoming FY89 operating budget and the FY90 request. The DNR staff is currently updating and formalizing computer procurement plans as part of the budget process and intends to provide a comprehensive overview of this area to the Commissions as part of the budget approval process.

This was an informational item; no action was required.

COMPUTER EQUIPMENT ACQUISITION FOR UNDERGROUND STORAGE TANK PROGRAM

Mark Slatterly, Budget and Grants Bureau Chief, Administrative Service Division, presented the following item.

The department requests approval to purchase the computer equipment listed below:

Quantity	Description	Estimated Cost
1	IBM PS-2 Mod 80 w/115 Meg hard disk and 2 Meg Ram	$ 8,043
13	IBM PS-2 Mod. 50 w/120 Meg hard disk and 1 Meg Ram	32,708
14	IBM Monitor Mod. #8512 - 14" Color	6,174
1	Hewlett-Packard Laser Jet 2 Printer incl. 1 set fonts and output tray	1,800
5	3174 Control Units	18,500
8	Feature 69 x 8138 4790 Token Ring Network Adapter/A (Channel)	6,360
1	Feature 8828 001 Token Ring Multi-Station Unit	660
8	Feature 83 x 7873 7873 LAN Support Program	400
8	Feature 75 x 0076 PC LAN Program 3-1/2" (Version 1.3)	1,800
8	d Base III Plus	3,920
8	IBM Displaywriter 4	2,800
13	Sets EMulation Hardware 9969 and Adaptors	9,737
8	Type 3 Media Filter #6466941	280
8	Type 3 Media Jumper Cable DHI 6944	112
2	Patch Cable #8642551	70
		$ 93,364

The purpose of this system will be to enter, manage, analyze and track underground storage tank (UST) information and activities. All personal computers must use the on-line information located on the mainframe. In addition, separate tracking and compliance programs will be developed to serve the cost accounting requirements of the LUST Trust Fund, compliance tracking of 300+ leaking tank clean-up projects, compliance tracking of tank removals and replacements, enforcement actions, and UST inspections.

The PS-2 Model 80 with monitor and seven of the Model 50 with monitors and associated hardware and software will be located on the fifth floor of the

IOWA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION COMMISSION
RULEMAKING STATUS REPORT
MAY 1, 1988

PROPOSAL	DRAFT TO COMMISSION	NOTICE PUBLISHED	RULES REVIEW COMMITTEE	HEARING	SUMMARY OF COMMENTS & RECOMMENDATIONS TO COMMISSION	RULES ADOPTED	RULES PUBLISHED	RULE EFFECTIVE
1. Ch. 4 - Rulemaking Procedures	2/15/88	3/09/88	4-19-88	---	5/16/88	*5/16/88	*6/15/88	*7/20/88
2. Ch. 5 - Petition for Rulemaking	2/15/88	3/09/88	4-19-88	---	5/16/88	*5/16/88	*6/15/88	*7/20/88
3. Ch. 7 - Contested Case Procedures	3/21/88	4/20/88		---				
4. Ch. 22 - Air Quality Permitting	4/25/88	*5/18/88		6/08/88 6/15/88 6/22/88				
5. Ch. 38 - Private Well Construction Permit	12/18/87	1/13/88	3/09/88	2/03/88 2/04/88 2/08/88	4/25/88	4/25/88	*5/18/88	*6/22/88
6. Ch. 39 - Well Plugging	3/21/88	4/21/88		5/12/88 5/13/88 5/16/88				
7. Ch. 40, 41 - Water Supply	4/25/88	*5/18/88		6/13/88 6/14/88 6/15/88				
8. Ch. 47 - Grants to Counties	2/15/88	3/09/88	4/19/88	3/29/88 3/31/88 4/04/88	4/25/88	4/25/88	*5/18/88	*6/22/88
9. Ch. 70 - Channel Changes	4/25/88	*5/18/88		6/09/88				
10. Chs. 100, 103, 110 - Landfill Ground Water Monitoring	10/20/87	11/18/87	12/10/87	1/06/88 1/07/88 1/08/88	5/16/88	*5/16/88	*6/15/88	*7/20/88

*Projected

MONTHLY VARIANCE REPORT [illegible]

No.	Facility	Program	Engineer	Subject	Decision	Date
1	Keystone, City of	Wastewater Const.	Crawford Engr.	Number of Aerated Cells	Approved	4/13/88
2	Cherokee, City of(East)	Wastewater Oper.	B.Broeicher,City Ad	Monitoring Frequency	Denied	4/21/88

RECESS

Chairman Schlutz recessed the meeting at 5:00 p.m., Monday, May 16, 1988.

MEETING RECONVENES 8:30 A.M., TUESDAY, MAY 17, 1988

ADOPTED RULE--CHAPTER 100, SCOPE OF TITLE - DEFINITIONS - FORMS - RULES OF PRACTICE--CHAPTER 103, SANITARY LANDFILLS--CHAPTER 110, DESIGN, CONSTRUCTION AND OPERATION STANDARDS FOR SOLID WASTE MANAGEMENT FACILITIES

Allan Stokes, Division Administrator, Environmental Protection Division, presented the following item.

The Commission is requested to adopt rules amending Chapters 100 and 103, and creating a new Chapter 100 of the ARC.

Attached is a copy of the rules and our responsiveness summary. We received extensive comments on the rules as published i the Notice of Intended Action. Some comments have resulted in changes to the proposed rule.

As authorized by the Commission, public hearings were held at various locations across the state on January 6, 7 and 8, 1988. All comments oral and written were considered.

ENVIRONMENTAL PROTECTION COMMISSION [567]
Adopted Rule

Pursuant to Iowa Code section 455B.304, the Environmental Protection Commission adopts amendments to 567--Chapter 100, "Scope of Titles-Definitions-Forms-Rules of Practice" and 567--Chapter 103, "Sanitary Landfills," Iowa Administrative Code and part of a new 567--Chapter 110, "Design, Construction and Operation Standards for Solid Waste Management Facilities."

Notice of intended action was published in the Iowa Administrative Bulletin on December 2, 1987 as ARC 8188.

In accordance with Iowa Code section 455B.304, the Commission is required to adopt rules establishing standards for construction, operation and maintenance of hydrologic monitoring systems in sanitary landfills. In accordance with this authority, the Commission proposes to adopt amendments to existing rules in order to provide quantitative standards and methodology to e used by the landfill authority for applying these standards. These standards are to be applied to facilities which dispose of solid waste by burial.

The Department shall require submittal of all hydrologic monitoring system plans within a three-year period. Plans must be submitted for review within 90 days of receiving notice from the Department.

The Department proposes to give notice to facilities based on the following priority:

1. Facilities with leachate migration problems and/or minimal groundwater monitoring systems;
2. Facilities applying for a new permit or permit amendments which involve major lateral and/or vertical expansion;
3. With notice of permit expiration and prior to renewal.

additional samples to be split and analyzed to determine if the values obtained outside the control limits were the result of laboratory or sampling error. Any additional analytical results shall be submitted to the department by the owner or operator within seven days of receipt. The department will review the information and determine if additional monitoring or preparation of a groundwater quality assessment plan, in accordance with subsection 103.2(9), is necessary.

103.2(8) Record keeping and recording.

a. The persons conducting the sampling must record the procedures, measurements and observations at the time of sampling. The field records must be sufficient to document whether the procedures and requirements specified in the sampling protocol have been followed. The records must also contain the names of the persons conducting the sampling, the time and date each monitoring point was sampled, the required field measurement or test result. The owner or operator must submit copies of these field records to the department if requested.

b. The owner or operator shall keep records of analyses and the associated groundwater surface elevations for the active live and postclosure period of the facility. These records shall be kept at the site or in the administrative files of the owner or operator, and shall be available for review in the county which the landfill is located by the department upon request.

c. The owner or operator shall provide the department with copies of the quarterly monitoring analytical results by the dates specified in the facility's operation permit.

d. An annual report summarizing the effect the facility is having on ground and surface water quality shall be submitted to the department by November 30 each year. The summary is to be prepared by an engineer registered in the state of Iowa and incorporated in the November semiannual engineer inspection report. The contents of this summary are to include the following items:

1. Amounts and kinds of wastes accepted under Special Waste Authorizations.

2. A narrative describing the effects the facility is having on surrounding surface and groundwater quality and any changes made or maintenance needed in the monitoring network.

3. Graphs showing concentrations versus time for all monitoring parameters for each well for as long as records exist for that parameter. Control limits (-two standard deviations from the initial background value) must be shown in each graph. (See Appendix A, Standard Deviation Calculation.)

4. Results of activities and tests required by the well maintenance and performance reevaluation plan described in paragraph 567--110.1(1)"b"5 shall be submitted to the department.

103.2(9) Groundwater quality assessment plan.

a. If leachate migration occurs and, as required by the department, the owner or operator shall develop and submit for approval a specific plan to conduct a groundwater quality assessment study at the facility to determine the rate of migration and the extent and constituent composition of the leachate release. At a minimum, the assessment monitoring plan must contain the following elements:

1. Discussion of the hydrogeologic conditions at the site with an identification of potential contaminant pathways.

2. Description of the present detection monitoring system.

3. A description of the approach the owner or operator will take to substantiate any contention that the contamination may have been falsely indicated.

Also to be included are maps showing location of soil borings, other field tests/measurements, and existing wells shall be provided.

567--110.6(455B) Evaluation of hydrogeologic conditions.

110.6(1) Based on soil boring and other available information, a description of the site geology shall be made. This shall include preparation of geologic cross sections of sufficient number and spacing (no fewer than four at every site) to adequately define all areas of the site and of sufficient detail to adequately depict major stratigraphic and structural trends and reflect geologic structural features in relation to groundwater flow. Each pair of cross sections must be as near to perpendicular as possible to adequately portray the site geology.

110.6(2) A description of the hydrogeologic unit(s) within the saturated zone shall be made including: thickness; depth, hydraulic properties, such as transmissivity and storage coefficient or specific yield; description of the role of each as confining bed, aquifer, or perched saturated zone, and their actual or potential use as water supply aquifers.

110.6(3) All groundwater flow paths from the site shall be identified, including both horizontal and vertical components of flow. A contour map of the water table shall be presented showing horizontal flow paths. A potentiometric surface map of the uppermost aquifer showing horizontal flow paths shall also be presented, if different than the water table. Vertical flow paths shall be shown in at least two profiles approximately parallel to the direction of horizontal flow. Vertical flow paths shall be determined by water level measurements from clustered wells at different depth, if possible. An evaluation of vertical groundwater flow based on the hydrologic properties of the various strata encountered at the site, estimated groundwater flow and recharge rates, and known information on hydraulic head shall also be made.

110.6(4) The seasonal, temporal and artificially induced variations in groundwater flow shall be evaluated. Temporal variations would occur due to natural events, such as rainfall. The addition of tilelines, removal of overburden, or deposition of wastes would constitute artificially induced variations.

110.6(5) Surface water flow paths from the site shall be identified on topographic contour maps.

567--110.7(455B) Monitoring system plan. A hydrologic monitoring system shall be designed to intercept the groundwater and surface water flow paths from the site. The plan shall include proposed locations and depths for monitoring wells in accordance with monitoring well siting criteria in subrule 567--110.1(2). Monitoring wells shall be designed in accordance with subrule 567--110.1(3).

The surface water monitoring plan shall include monitoring points on all standing and flowing bodies of water which will receive surface runoff and/or groundwater discharge from the site. For streams, sampling points upstream and downstream of areas of potential impact from the site should be selected.

567--110.8(455B) Sampling protocol.

At a minimum, the sampling protocol must include procedures or descriptions of the:

Order in which monitoring points are to be sampled, all tests and procedures needed at each monitoring point and the order in which these procedures will be carried out, equipment and containers to be used, procedures and precautions for their use; precautions to avoid introducing contaminants from

110.12(1) Sealing bore holes. Fill the bore hole by extending a tremie tube to the bottom of the hole. Apply bentonite or expanding cement grout through the tube to the bottom of the hole and raise the tremie tube as the hole is filled from the bottom upward. Keep the end of the tremie tube submerged in the grout while filling. Fill the bore hole from the base of the boring all the way to the ground surface.

110.12(2) Sealing abandoned monitoring wells.

a. Well is known to be constructed properly with impermeable grout that was installed from the bottom up using a tremie tube. Remove any existing protective metal casing by vertically pulling it off the well. Using a tremie tube, fill the inner well casing with an impermeable grout slurry from the bottom to ground surface. After 24 hours, retop the grout if it has settled below the existing ground surface.

b. Well construction is improper or undocumented. Attempt to remove the well casing. If this fails, either drill round the well casing using a hollow stem auger of large inside diameter or drill out the well casing using a standard casing bit or solid stem auger with a boring diameter greater than the initial diameter of the hole. Drill to the maximum depth of the previously drilled boring. Clean the drilling debris from the interior of the auger or bore hole. Seal the bore hole with an impermeable grout using a tremie tube. If the soil conditions permit the sealing to be conducted in a continuous operation, keep the tremie tube submerged in the grout at all times. After 24 hours, retop the grout if it has settled below the ground surface.

c. Monitoring wells in future fill areas. Remove well and seal as described in the procedures for sealing bore holes. Dig a pit around the well five feet below the ground surface or five feet below the base of the proposed landfill excavation, whichever is deeper. Fill the pit above the abandoned hole with compacted one foot (maximum) layers of clay which meets the downward leakage criteria (0.004 $ft.^3/day/ft.^2$).

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Date

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Larry J. Wilson, Director

Responsiveness Summary

1	Larry Crane, P.E.	7	John Bellizzi, P.E.
	Cindy Turkle	8	Ron Mace
	Gary Stroud	9	John Kemp
2	Edward Repa, PhD	10	Charles Smadeke
3	E.J. (Rick) Yoerger, P.E.	11	Mike Lustig
4	Burton Kross, PhD	12	Dave Bair
5	Michael McGuire	13	Jim Ulveling
6	Eldo W. Schornhorst, P.E.	14	Harold Rowley

1. (2) COMMENT: Re: "Aquifer" (def) The definition as proposed protects very low yield "aquifers" which may have little or no potential to be

recommended that notification be made based on a site specific prioritization system.

RESPONSE: We acknowledge seasonal and possibly budgeting complications which could prevent compliance with the 90-day planning and 60-day implementation requirements.

RECOMMENDED ACTION: Change to allow 120 days for plan preparation and 90 days for implementation.

15. **(1)(2)(3)(5)(6) COMMENTS:** Re: Section 103.2(4) (as amended) As proposed, none of the baseline parameters are duplicated in the quarterly monitoring. It is felt that common parameters must appear in both lists. The value of the baseline data is questionable as it is believed that 4 quarterly samples constitutes an insufficient data base. It is felt that baseline sampling and monitoring should be eliminated altogether. The first year sampling list includes parameters more suitable to assessing potable and surface water quality, than representing the most common and transmissible constituents of leachate. It is recommended that the listed organic compounds be replaced with TOC and TOX and that vinyl chloride be eliminated because PVC well construction is permitted (per Crane et al). It is suggested that TOC and TOX not be used as indicators as they are very generalized parameters having a wide range of laboratory precision and therefore will not result in reliable statistical analysis (per Repa). The use of a "standard suite" or 28 VOC's may be a more informative and economical alternative than selected organics analysis. Also an annual analysis of leachate for a "standard suite" should be required as a means of identifying and modifying indicator parameters.

    RESPONSE: Routine quarterly monitoring is intended to begin in the first year. The objective is to monitor changes in the seven listed quarterly monitoring parameters, and if justified at any future point, require repeat analysis of some or all of the listed first year parameters for comparison with initial levels. We favor the comment by Repa with regard to TOC, however the use of an expanded list of organic compounds on an on-going monitoring basis may not be justified until other parameters indicate more probable evidence of leachate movement. The necessity of each parameter has been reassessed. The use of a tiered monitoring concept is intended to keep costs reasonable. Appropriate PVC well construction will minimize interference in listed organic compound analysis, with the possible exception of vinyl chloride.

    RECOMMENDED ACTION: Change section 103.2(4)d by inserting the phrase in the third sentence as follows: "Samples shall be analyzed for the following parameters <u>in addition to the parameters listed in subsection e of this section</u>, plus any additional...". Also under this section delete the parameters enumerated as: 5,9,12 through 20 inclusive, and 28. Change section 103.2(4)f by correcting the omission of the word "be" between the words "must analyzed", also delete "1. Total organic carbon".

16. **(3) COMMENTS:** Re: Section 103.2(4)b & c (as amended) Will monthly monitoring of wells for water level be required for the first year, the active life, or through post-closure? Surface water sampling from major

RESPONSE: This point should be properly addressed by sample collection or preservation as described within the protocol required to be submitted.

RECOMMENDED ACTION: No change.

31. **(1)(2) COMMENTS:** Re: Section 110.9(2) (as proposed) It is suggested that the term biannual be replaced with the term biennial if it is intended that an evaluation be performed every two years. It is felt that in-situ permeability testing every five years is excessive. It is felt that the requirements of section 110.4(2) do not specifically call for in-situ permeability at all wells, therefore later comparison of data at all wells is not possible.

    RESPONSE: The term biannual (twice per year) is the intended usage. The assumption that in-situ permeability tests do not apply to all wells is in error. Five years is not considered to be an excessively long period for such a routine function to assure that the gravel path is not plugged.

    RECOMMENDED ACTION: No change.

32. **(1)(2)(3) COMMENTS:** Re: Section 110.10(1) (as proposed) The spacing, depth, and location of monitoring wells should be based on site specific study. Why conduct site investigations if in the end a cookbook solution is acceptable under the proposed rule? It is felt that locating monitoring wells within 50 foot of the waste boundary may easily be within the back slopes. Also, wells constructed in such locations around a relatively small site are not likely to detect leachate unless it moves with a near vertical gradient. As such they would be in the way of future remedial action should it be required. Such location could itself introduce possible contamination to the aquifer if the seal should fail.

    RESPONSE: A site specific study is required for all sites. The effort involved to develop the study may vary by degree depending upon the size of the site. In some instances, this degree may be sufficient to substantiate and warrant a variance from the rule.

    RECOMMENDED ACTION: Add a new section as follows: 110.13 Variance from design, construction, and operation standards. Pursuant to the authority of 455B.303 of the Iowa Code, a variance from the specific requirements of Chapter 110 may be issued, modified, or denied by the Director. The request should also include any supporting information to be considered by the Director in the formulation of his decision.

33. **(3)(4) COMMENTS:** Re: Section 110.10(5) (as proposed) It was also suggested that requiring 2 upgradient wells may be a means of evaluating natural variations in ground water quality and mitigating false positive statistical findings more quickly and economically. It is noted that most private wells will not meet the construction criteria described in the rule as proposed. The utilization of such a well could cause the results of sampling parameters, which could be affected by casing material, to be disregarded.

landfill, immediately quit washing over the outside drain, voluntarily removed gas tanks, and disclosed the individual and location of the removed fill. Mr. Nichols related that the companies simply do not have the financial resources to comply with the DNR's administrative order and stay in business. He stated that they cannot accept the potential legal liability that this order would create and are requesting that the Commission rescind the order.

Discussion followed regarding hazardous waste and EPA rules.

Motion was made by Keith Uhl to uphold the hearing officer's decision. Seconded by Richard Timmerman.

Discussion took place regarding remedial action and incurred costs for same, water samples taken, and the possibility of Mr. Nichols getting relief from his insurance company.

Mark Landa stated that the administrative order requires the companies to immediately cease the open burning of wastes; immediately cease the disposal of solid wastes generated by the companies at any place other than a permanent solid waste disposal facility; immediately advise the department of the location of the disposal of solid waste generated and removed as a result of the companies' activities; submit within 30 days a proposal for the testing and analysis of the soils in and around the disposal area located on the facility property and the contents of the disposal area; requires the determination of the type of waste disposed of in the ravine, the vertical and horizontal extent of any surface or soil contamination, and the existence and extent of any groundwater contamination; implement the plan upon approval, and submit results of analytical work to the department; and cease the discharge to water of the state of any wastewater resulting from processes at the facility until the NPDES permit is obtained.

Chairman Schlutz requested a roll call vote on Keith Uhl's motion to uphold the hearing officer's decision. "Aye" votes were cast by Commissioners Hammitt, Siebenmann, Timmerman and Uhl. "Nay" votes were cast by Commissioners Dunn, Mohr, Yeager and Schlutz. Motion failed 4 to 4.

Mr. Nichols stated that his company has taken care of many of the requirements made by the department.

Mike Murphy stated that the Commission would now need to either modify or overturn the order and state reasons for reaching their decision.

Further discussion took place regarding permits, the requirement for a site study, and upholding the hearing officer's decision in part.

Motion was made by Keith Uhl to affirm in part, and modify in part, the decision of the hearing officer by affirming those portions of the decision which orders the company to pay a $1,000 penalty and to tell truthfully where the hazardous waste is, along with affirming those portions of the order which would require the investigation and report as to possible remedial measures. But delete from the hearing officer's order those portions which would call for the cessation of water discharge and for the cessation of the burning. The reason for modifying the order is that the portions calling for the

STATE OF IOWA

IOWA DEPARTMENT OF NATURAL RESOURCES

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

The following list contains detailed information for fundable projects in Fiscal Year 1988. It also shows the priority rankings of all other projects which may be eligible for EPA grant funding but cannot be funded with available funds.

Pages 1 through 3 comprise the fundable list.

A summary of funds on Page 4 shows how available fund balances are proposed to be distributed.

Pages 5 through 7 list the subsequent steps or phases of projects which have been initiated with grants assistance.

Pages 8 through 10 show the relative rankings of all other projects which are not fundable.

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (59) Priority Points (BB)	Applicant Legal Name County Name Street Address City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (C2) Auth/Fac. No. (32)	Grant Number Parent Project (B2)	Project Number (02, 01, 54) 03 - 0	Step (87) Type (04)	St Cert (A5)	Proj Desc (20)	Sel Comm (33)	Innov Elig Cost (Y7) Altern Elig Cost (Y8)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (Y0-Y6)	Enf Req
1055 .686	City of Dakota City Humboldt County 26 South 5th Street Dakota City IA 50529	IA4622001 190202001	C190975 01	C190975 02	4 C	P 880630	T	R	 404,400	404,400	222,420	I 404,400	AY
1065 .641	City of Glidden Carroll County 108 Idaho Street Glidden IA 51443	IA1438001 190329001	C190916 01	C190916 02	4 C	P 880630	T	R	456,100 45,500	705,100	387,800	I 607,500 IIIA 97,600	AY AY
1215 .421	City of Ricketts Crawford County Main Street Ricketts IA 51460	IA2441001 191072001	C190911 01	C190911 02	4 C	P 880630	T	R	 225,600	225,600	124,080	I 225,600	AY
1400 .162	City of Cumming Warren county City Hall Cumming IA 50061	UNSEWERED 190198001		C191273 01	4 M	P 890630	T Coll	R	 209,800	265,000	145,750	I 78,000 IVA 187,000	BY D
1410 .154	City of St Marys Warren County City Hall St Marys IA 50241	UNSEWERED 190768001		C191029 01	4 M	P 890630	T Coll	R	 277,500	537,600	295,680	I 206,700 IVA 330,900	BY D
1455 .113	City of Panama Shelby County Box 10 Main Street Panama IA 51562	UNSEWERED 190664001	C191254 01	C191254 02	4 C	P 880930	T Coll	R	 410,600	441,600	242,880	I 225,200 IVA 216,400	BY D

FISCAL YEAR 1988

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST
DISCHARGER RANKING

Points	Project	Points	Project	Points	Project	Points	Project
254.28	Marshalltown	18.90	Colfax	8.24	Danville	3.02	Bennett
254.11	Nevada	18.73	Sumner	7.59	Blairstown	2.94	Anamosa
190.88	Iowa Falls	17.90	Corning	7.56	Anita	2.75	Low Moor
147.27	Winterset	17.71	Dyersville	7.06	Dunlap	2.51	Preston
136.09	Hampton	16.60	Dows	7.05	Dumont	2.50	Lake Park
119.41	Albia	14.53	Conrad	6.72	Grinnell	2.10	West Chester*
43.37	Adel	13.82	Wheatland	6.60	Marengo	1.99	Milo
42.26	Durant	12.09	Ozawa	5.18	Wyoming	1.81	Decatur City*
38.14	Cedar Falls	11.16	Goldfield	4.73	Denver	1.77	Fenton*
36.36	Humboldt	10.92	Martensdale	4.05	Kiron	1.75	Madrid
36.08	Waterloo	10.79	Woodbine	4.02	Oakland	1.75	Joice*
35.96	Gladbrook	9.96	Missouri Valley	3.93	Wellman	1.68	Haverhill*
30.23	Carlisle	9.78	Ely	3.60	Millersburg*	1.65	Lone Rock*
29.26	Sully	8.44	Lamoni	3.35	Ferguson*	1.58	Moorland*
23.97	Stacyville	8.40	Jesup	3.25	Graettinger	1.57	Monticello
18.96	Victor	8.38	West Point	3.19	Clear Lake SSD	1.54	Luxemburg*

* Unsewered Community

Rulemaking," and 5, "Petitions for Rulemaking." Notices of intended action were published in the March 9, 1988 IAB as ARC 8492 and 8493. The Commission adopts 567--Chapters 4 and 5, Iowa Administrative Code by cross-reference, which were published in full in the June 1, 1988 IAB as ARC___.

These rules will become effective on July 20, 1988.

ITEM 1. Adopt a new 567--Chapter 4, "Agency Procedure for Rulemaking," as follows:

567--4.1(17A) Adoption by reference. The commission adopts by reference 561--Chapter 4, Iowa Administrative Code.

ITEM 2. Adopt a new 567--Chapter 5, "Petitions for Rulemaking," as follows:

567--5.1(17A) Adoption by reference. The commission adopts by reference 561--Chapter 5, Iowa Administrative Code.

ITEM 3. Rescind 900--Chapter 5, Iowa Administrative Code.

____
Date

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Larry J. Wilson, Director

NATURAL RESOURCES, DEPARTMENT OF (561)
Adopted Rule

Pursuant to the authority of Iowa Code sections 455A.4, 17A.3 and 17A.7, the Director of the Department of Natural Resources adopts new Chapters 4, "Agency Procedure for Rule Making," and 5, "Petitions for Rule Making," Iowa Administrative Code. Notices of intended action were published in the March 9, 1988, IAB, as ARC 8494 and 8495. This rule is identical to that published in the notices, except for correction of numbering in internal cross-references in Chapter 5. The rules adopt the uniform rules.

These will become effective on July 6, 1988.

ITEM 1. Adopt a new chapter 561--4(17A), as follows:

CHAPTER 4
AGENCY PROCEDURE FOR RULE MAKING

Insert the agency procedure for rule making segment of the Uniform Administrative Rules which are printed in the front of volume I of the Iowa Administrative Code, with the following amendments:

The agency contract for 4.5(1), 4.6(3), 4.11(1) or other unspecified rule making matters is the Government Liaison Bureau, Coordination and Information Division, Department of Natural Resources, 900 East Grand Avenue, Des Moines, Iowa 50319-0034, phone 515/281-8941.

Amend 561--4.4(17A) "Notice of proposed rule making," subrule 4.4(3), by inserting in place of the last phrase "(specify time period)," the phrase "one State Fiscal Year (July 1 to June 30)" and adding a new sentence, "Subscriptions must be renewed annually by June 15."

Wallace State Office Building, Iowa Department of Natural Resources, Environmental Protection Division, Underground Storage Tank Section. The other six personal computers and associated hardware and software will be sent to each of our regional offices of the Iowa Department of Natural Resources.

The federal government will pay for 75 percent of the cost of this acquisition.

Motion was made by Catherine Dunn to approve the Computer Equipment Acquisition for the Underground Storage Tank Program as presented. Seconded by Donna Hammitt. Motion carried unanimously.

PUBLIC PARTICIPATION

Cindy Turkle, Administrator, Scott County Landfill, expressed concerns relating to a formal statement from scrap metal dealers stating that they would no longer take white goods from Iowa. She was also concerned with the groundwater monitoring rules at landfills, stating that she felt that comments provided by landfill operators in earlier meetings with the department were not listened to very well. Ms. Turkle stated that they tried to get a review staff to work with department staff and was refused. She added that we now have a set of rules that will not be workable and will be economically difficult to implement. Ms. Turkle stated that the main concern is that this should be reviewed by a group who will have some good communication between DNR staff and the people who actually have to implement the requirement of the rules.

STATUS REPORT ON THE WASTE MANAGEMENT AUTHORITY DIVISION

Ruth Bender, Division Administrator, Waste Management Authority, presented the following item.

The Commission will be given a review of the Waste Management Authority Division's organization and programs. A description of the program activities since the division's establishment in October of 1987 will be provided.

Since its establishment in October of 1987, the Waste Management Authority Division has been initiating programs and fulfilling deadlines set out in the Waste Management Authority Act of of 1987 (S.F. 396) and the Groundwater Protection Act of 1987 (H.F. 631). The organization and staffing of the division are provided in Attachment A. The mission statement for the division and a listing of the programs administered by the division are provided in Attachment B. Each of the programs will be described in detail, including the requirements in law and the division's activities in the past six months.

REPORTS OF HAZARDOUS CONDITIONS

During the period of April 1, 1988 through April 30, 1988, reports of 130 hazardous conditions were forwarded to the Central Office. Two incidents are highlighted, followed by a general summary and the number per field office.

Date Reported and County	Description: Material, Amount, Date of Incident, Cause, Location, Impact	Responsible Party	Response and Corrective Actions
4/04/88 PLYMOUTH	An above-ground storage tank on Highway 75 north of Hinton, Iowa was filled with 8,000 gallons of gasoline on April 1, 1988, but when an attempt was made to pump product from the tank on April 4, no gasoline was left. The product reached groundwater at a depth of 20 feet.	Plymouth Coop 1st Avenue and 1st Street, LeMars, Iowa 51031	Trenches were dug to locate the product and excavate contaminated soil. A contractor was retained by the responsible party to assess the extent of contamination.
4/04/88 KOSSUTH	A bung failed on a storage tank on South Phillips Street in Algona, Iowa on April 4, 1988, and about 10,100 gallons of 28% urea ammonium nitrate fertilizer were spilled. Approximately 500 gallons were contained within a berm. The rest of the material flowed to the street and went down the storm sewer.	Cargill Box 8129, Des Moines, Iowa 50301	A manhole was located near the Highway 169 bridge on the north side of Algona. About 7,900 gallons of material were recovered at that point. The sewer was flushed and rinse water was collected for application on land.

Numbers in Parentheses Represent Reports for the Same Period in Fiscal Year 1987

Month	Total # of Incidents	Petroleum Product	Agri. Chemical	Other Chemicals and Substances	Handling and Storage	Pipeline	Highway Incident	RR Incident	Fire	Other
		Substance Type			*Mode*					
Oct	69	47	4	18	53	0	9	1	2	4
Nov	48	35	3	10	37	0	4	0	1	6
Dec	46	36	3	7	39	1	2	0	0	4
Jan	54	43	4	7	45	1	5	1	1	2
Feb	51	30	2	19	37	1	9	3	1	0
Mar	67	41	10	16	49	1	11	2	0	4
Apr	130 (78)	58 (32)	50 (25)	22 (21)	85 (51)	0 (3)	36 (16)	2 (3)	2(2)	5 (3)
		UST-28		UST-1	UST-29					

Total # of Incidents Per Field Office This Period	01	02	03	04	05	06
	25	19	16	13	24	33

These amendments may impact sanitary landfills economically and operationally.

Public hearings were held in Iowa City on January 6, 1988; in Council Bluffs on January 7, 1988; and in Des Moines on January 8, 1988 at which time oral and written comments were received. A written response has been prepared.

Numerous changes in the rule as it appeared in the Notice of Intended Action have been made in response to public comments.

These rules are intended to implement Iowa Code section 455B.304.

The following amendments are proposed:

ITEM 1. Amend rule 567--100.2(455B) by adding or substituting the following definitions in alphabetical order:

"Annular space" means the open space formed between the borehole and the well casing.

"Aquifer" means a saturated geologic formation or combination of formations which has appreciably greater ability to transmit water than do adjacent formations. Typically, an aquifer is capable of yielding usable quantities of water to a well.

"Confined aquifer" means an aquifer with a confining bed above and below. Water in a confined aquifer is under pressure such that water rises above the top of the aquifer in a well which penetrates the aquifer.

"Confining bed" means a geologic formation exhibiting relatively low ability to transmit water compared to adjacent formations. Confining beds are typically not capable of yielding usable quantities of water to a well.

"Downgradient" means direction of decreasing hydraulic head.

"Downgradient well" means a well which has been installed downgradient of the site and is capable of detecting the migration of contaminants from the site.

"Geologic cross section" means a drawing of a subsurface profile showing the various strata encountered based on at least three soil borings.

"Groundwater flow path" means the route of water (and contaminant) travel within the groundwater system.

"Hydraulic head: means the energy contained at a point in the groundwater system. Hydraulic head is measured as the elevation to which water rises in a piezometer.

"Landfill property" means the entire area of the landfill including the disposal site and any other contiguous property proposed for actual landfill use.

"Leachate" means a liquid that has percolated through or drained from a solid waste landfill.

"Mean" is the sum of all the measurements divided by the number of measurements.

"Perched saturated zone" is a localized saturated zone occurring above the regional zone of saturation. The perched saturated zone's presence is caused by a lens of relatively impermeable material within the unsaturated zone that impedes the downward movement of water toward the zone of saturation.

"Piezometers" are devices used to measure hydraulic head at a specific point in the groundwater system. Piezometers are generally small diameter wells sealed along the entire length and open to water only at the bottom through a short section of well screen, which is the point where hydraulic head is measured. A piezometer may be constructed similar to a monitoring well or may be a driven well point.

"Potentiometric surface" is the imaginary surface that represents the level to which water from a confined aquifer will rise in wells.

4. Description of the investigatory approach used to characterize the rate and extent of leachate migration.

5. Discussion of the number, location and depth of wells that will be initially installed as well as a strategy for installing more wells in subsequent investigatory phases.

6. Information on well design and construction.

7. Description of the sampling and analytical program used to obtain and analyze groundwater monitoring data.

8. Description of data collection and analysis procedures.

9. Schedule for the implementation of each phase of the assessment study.

b. After the plan has been approved by the department, the owner or operator shall implement the plan according to the schedule in the plan.

c. The owner or operator shall provide the department with copies of the quarterly monitoring analytical results by the dates specified in the facility's operation permit.

d. An annual report summarizing the effect the facility is having on ground and surface water quality shall be submitted to the department by November 30 each year. The summary is to be prepared by an engineer registered in the state of Iowa and incorporated in the November semiannual engineer inspection report. The contents of this summary are to include the following items:

1. Amounts and kinds of wastes accepted under Special Waste Authorizations.

2. A narrative describing the effects the facility is having on surrounding surface and groundwater quality and any changes made or maintenance needed in the monitoring network.

3. Graphs showing concentrations versus time for all monitoring parameters for each well for as long as records exist for that parameter. Control limits (-two standard deviations from the initial background value) must be shown on each graph. (See Appendix A, Standard Deviation Calculation.)

4. Results of activities and tests required by the well maintenance and performance reevaluation plan described in paragraph 567--110.1(1)"b"5 shall be submitted to the department.

103.2(9) Groundwater quality assessment plan.

a. If leachate migration occurs and, as required by the department, the owner or operator shall develop and submit for approval a specific plan to conduct a groundwater quality assessment study at the facility to determine the rate of migration and the extent and constituent composition of the leachate release. At a minimum, the assessment monitoring plan must contain the following elements:

1. Discussion of the hydrogeologic conditions at the site with an identification of potential contaminant pathways.

2. Description of the present detection monitoring system.

3. A description of the approach the owner or operator will take to substantiate any contention that the contamination may have been falsely indicated.

4. Description of the investigatory approach used to characterize the rate and extent of leachate migration.

5. Discussion of the number, location and depth of wells that will be initially installed as well as a strategy for installing more wells in subsequent investigatory phases.

6. Information on well design and construction.

7. Description of the sampling and analytical program used to obtain and analyze groundwater monitoring data.

8. Description of data collection and analysis procedures.

9. Schedule for the implementation of each phase of the assessment study.

outside sources into monitoring wells or samples; and how equipment must be cleaned between uses.

Procedures for evacuating each monitoring well prior to each water quality sampling,

Procedures for handling field blanks and other quality assurance samples at the facility and in transit to and from the laboratory,

Procedures for field filtration of samples, if required,

Procedures for sample preservation,

Procedures for sample collection, labeling and handling at the facility and during transport to the laboratory,

Procedures for recording field observations and measurements,

Procedures for records maintenance and data analysis, and

Procedures for sampling surface water monitoring points including exact sampling locations and depths.

567--110.9(455B) Monitoring well maintenance performance reevaluation plan.

110.9(1) A monitoring well performance reevaluation plan shall be included as part of the hydrogeologic monitoring system plan The plan shall ensure that all monitoring points remain reliable.

110.9(2) The plan shall include the following items:

a. Every two years an examination of high and low water levels accompanied by a discussion of the acceptability of well location (vertically and horizontally) and exposure of the screened interval to the atmosphere.

b. A biannual evaluation of water level conditions in the monitoring wells to ensure the effects of waste disposal or well operation have not resulted in changes in the hydrologic setting and resultant flow paths.

c. Annually conducting well depth measurements to ensure wells are physically intact and not filling with sediment.

d. Every five years conduct in-situ permeability tests on monitoring wells; comparing test data with those collected originally to determine if well deterioration is occurring.

567--110.10(455B) Monitoring well siting requirements.

110.10(1) Downgradient monitoring wells. Downgradient monitoring wells must be located to provide a high level of certainty that releases of contaminants from the site can be promptly detected. Downgradient monitoring wells should be placed along the site perimeter, within 50 feet of the planned liner or waste boundary unless site conditions dictate otherwise, downgradient of the facility with respect to the hydrologic unit being monitored. For those facilities which are long-term, multi-phase operations, the department may establish temporary waste boundaries in order to define locations for monitoring wells.

110.10(2) Water table wells. At least three downgradient water table monitoring wells shall be installed at each facility. The maximum spacing between wells shall be 300 feet.

110.10(3) Uppermost aquifer monitoring wells. If different than water table monitoring wells, at least three uppermost aquifer monitoring wells shall be installed at each facility. Uppermost aquifer monitoring wells shall be spaced no more than 600 feet apart. If the uppermost aquifer is located more than 50 feet below the water table, this requirement may be relaxed, although at least one downgradient uppermost aquifer monitoring well will be required.

110.10(4) Other downgradient monitoring wells. Additional downgradient monitoring wells will be required if the water table and uppermost aquifer developed as a water supply source. A lower limit of yield of 1 gpm, varying by exception downward to 0.2 gpm, is suggested.

RESPONSE: Protecting only ground water capable of being developed as a water supply is contrary to the statement of policy set out in the Ground Wat r Protection Bill, which requires prevention of "further contamination of ground water from any source to the maximum extent practical."

RECOMMENDED ACTION: No change.

2. (2) **COMMENT:** Re: "Down-gradient" (def) The definition is incorrect and should refer to "direction of decreasing hydraulic head", rather than "direction of ground water flow".

RESPONSE: The definition as proposed was intended to be more easily understood by landfill officials not having a technical background. The suggested definition is more technically precise.

RECOMMENDED ACTION: Change rule to read: "Down-gradient" means direction of decreasing hydraulic head.

3. (2) **COMMENT:** Re: "Down-gradient well" (def) The words "in the upper most aquifer" should be added to the definition.

RESPONSE: This appears to be a redundancy. The definition as proposed requires that the well be capable of detecting the migration of contaminants from the site irrespective of whether they are being diffused through the water table or transported by ground water in the aquifer.

RECOMMENDED ACTION: No change.

4. (2) **COMMENT:** Re: "Leachate" (def) A change in the definition of leachate is suggested to distinguish between water draining through the fill and remaining uncontaminated,and that which passes through and becomes contaminated.

RESPONSE: Monitoring of water which has come in contact with solid waste must be conducted to determine if contamination has occurred.

RECOMMENDED ACTION: Agree to delete "including suspended solids" from definition as proposed.

5. (1) **COMMENT:** Re: "Perched saturated zone" (def) The preferred definition would reference a high permeability lens within a low permeability zone.

RESPONSE: It is felt that the definition as proposed is more descriptive of the mechanism by which a perched saturated zone would be created. The Geological Survey Bureau concurs.

RECOMMENDED ACTION: No change.

streams, especially during periods of high flow and subsequently high dilution, will not be very informative.

RESPONSE: Monthly monitoring of water levels will be required through post-closure. An argument can be made that leachate releases from landfills may be significantly increased with the occurrence of precipitation. The appropriateness of any sampling point must be addressed on a site specific basis in the monitoring system plan.

RECOMMENDATION: No change.

17. (1)(2)(3)(4) **COMMENTS:** Re: Section 103.2(6) (as amended) Appendix A was not distributed with the rules. Does the standard deviation calculation apply only to the upgradient wells for both the first year data collection and routine quarterly monitoring? Why not use data analysis and comparison procedures to include student t-test, etc. (per Crane et al)? It is noted that simplified statistical methods such as t-test are no longer required by the EPA Subtitle C program for ground water monitoring because ground water is not normally distributed. Therefore such tests have frequently resulted in false positive indications. EPA revised regulations now allow greater latitude in the selection of a statistically representative analysis method (per Repa). As the data base increases, more sophisticated statistical analysis should be used (per Kross).

    RESPONSE: The use of standard deviation is intended to provide a simple mechanism to require reporting to the department. Alternative statistical analysis and further evaluation of the significance of any observed deviation would be logical steps before increased monitoring requirements.

    RECOMMENDED ACTION: No change.

18. (1)(3) **COMMENTS:** Re: Section 103.2(8)d.3 (as amended) Graphing the data as described by this section for all wells and all parameters as a hard copy will be to voluminous and costly.

    RESPONSE: The data collection and analysis represents the major operational cost of the monitoring system. We believe that graphic presentation is the most effective means of assimilating the information. If the information is not understandably presented, it voids the investment associated with collection and analysis. We will accept computer compatible software presentations which will create graphic displays on departmental computers/printers.

    RECOMMENDED ACTION: No change.

19. (2)(3)(4) **COMMENTS:** Re: Section 103.2(9)a. What is the definition of leachate migration? It is suggested that a risk assessment be performed prior to requiring remedial action. It is suggested that not only actual leachate migration but suspected migration based on monitoring or other observations be specifically cited as reason to require an assessment plan (per Kross).

RESPONSE: The rules as proposed are intended to establish minimum requirements. The suggestions are reasonable, but probably beyond minimum.

RECOMMENDED ACTION: No change.

34. (4) **COMMENTS:** Re: Section 110.10(6) It is suggested that all potable water supply wells used by the landfill personnel be included in the regular monitoring program plus monitoring by regular bacterial safety analysis.

RESPONSE: This is a reasonable and prudent suggestion, but beyond the minimums intended by these rules.

RECOMMENDED ACTION: No change.

35. (1)(2) **COMMENTS:** Re: Section 110.11 (as proposed) It is felt that the typical well detail is appropriate to water table wells only. Other construction details will be more appropriate to confined aquifers, bedrock wells, etc. Also the most appropriate length of screen is dependent upon the strata in which it is to be located. It is suggested that protective devises need only be provided in high traffic areas.

RESPONSE: The general design given by EPD is appropriate for all unconsolidated materials. Bedrock wells are often constructed with an "open hole" interval instead of a "screened" interval; these may or may not be gravel-packed. All areas of landfill sites are considered potentially "high traffic."

RECOMMENDED ACTION: Add new section 110.13 as previously described.

36. (1)(2)(3)(6)(7)(8)(10)(13)(14) **COMMENTS:** Numerous specific and general examples of the financial impact of the proposed rule are cited, as well as suggested alternative monitoring schedules and parameters. A review by industry professionals and/or their trade organizations requested.

RESPONSE: This rule has been extensively heard in 2 separate public hearings. Numerous and varied comments have been received. The proposed rules have been extensively modified as a result of these comments. Further debate is not likely to produce a finished product wholly satisfactory to all parties.

RECOMMENDED ACTION: Adopt rule as proposed with specific changes noted.

Mr. Stokes stated that the whole process for the proposed rules started a year ago with informal discussions with various people involved in the solid waste area. He related that we received input on rough draft material and modified proposals based on some of the comments. Rules were put together, which the Commission approved for a notice of intended action, and went to public hearing. Three public hearings were held and voluminous comments were received. Based on those comments, the rulemaking was withdrawn and staff prepared a revised set of rules with substantial changes. Mr. Stokes stated that three public hearings were held on these revised rules in January of cessation of water discharge and the cessation of burning have occurred and are no longer needed. Seconded by Charlotte Mohr.

Chairman Schlutz requested a roll call vote. "Aye" votes were cast by Commissioners Dunn, Hammitt, Mohr, Siebenmann, Timmerman, Uhl, Yeager and Schlutz. Motion carried 8 to 0.

PUBLIC HEARING REQUEST -- FY89 CONSTRUCTION GRANT STATE PROJECT LIST

Allan Stokes, Division Administrator, Environmental Protection Division, presented the following item.

It is recommended that the Commission authorize the department to hold a public hearing on June 29, 1988 to receive comments on the proposed FY89 Construction Grant State Project List which was presented as an informational item at the April meeting.

The FY89 Construction Grant Project List was developed in accordance with provisions contained in the Priority System which is part of departmental rules 567--91(455B) Iowa Administrative Code. Approximately 300 communities were scored using a combination of factors such as operational monitoring data from calendar years 1986-87, water quality standards for specific receiving streams and the most current available population data. The FY89 funding summary represents input from the department's Construction Grants staff. The funding summary and fundable list includes project steps scheduled for award of grant assistance from projected funds available for obligation during the fiscal year, in accordance with applicable requirements contained in the priority system. Copies of the proposed list and notice of intended action will be mailed to all facilities on the list; to EPA in Kansas City; and the notice will also appear in the Des Moines Register, all at least 30 days prior to the hearing date.

Following the public hearing and comment period concerning the proposed FY89 Project List, staff will address all comments and prepare final recommendations for consideration at the August Commission meeting. If approved, the FY89 Construction Grants Project List would become effective on October 1, 1989.

DESCRIPTION OF STATE PROJECT PRIORITY LIST INFORMATION

COLUMN	DESCRIPTION
Priority Rank Priority Points	Priority Rank - This is a sequential order of priorities by project and step. Priority Points - This is the point source rating according to the criteria contained in 91.10(455B).
Applicant Legal Name County Name Street Address City, Zip Code	Identification of the eligible applicant.
Permit No.	Permit No. - Iowa NPDES discharge permit most closely releated to the applicant's project. If the project does not have municipal wastewater treatment and collection facilities, "unsewered" is entered. Auth/Fac No. - An identifying number for the facility used in the national Needs Survey conducted by EPA. If multiple authorities exist, the word "MULTIPLES" is entered in place of the authority/facility number.
Grant No. Parent Project	This is the grant number of the predecessor step or project for this project.
Project Number	This is the grant number including a state assigned facility need number and sequence number. The sequence number is the last two digits and indicates the number of the grant award to the applicant under the assigned facility need number (01 indicates first grant award, 02 second, etc.).
Project Step Type	Project Step 3 - Construction 4 - Combination grant for design and construction Type N - New grant award (01 sequence number) C - Continuation grant award (other than 01 sequence number)
State Cert.	Date (year-month-day) by which State anticipates the grant application will be forwarded to EPA for grant award. A preceding F signifies an actual endorsement date, and P indicates a projected target date.
Proj. Desc.	Project Description T - Wastewater treatment facility IT - Interceptor sewer integral to the treatment works as well as a treatment facility Rehab - Cost effective sewer system rehabilitation related to tratment works I(T) - Interceptor sewer construction in lieu of, or an integral phase of treatment works construction, assigned a treatment priority ranking EB - Equalization basin Relief - Relief sewers to transport nonexcessive I/I to treatment facilities Coll - Sanitary sewer collection system Storm Sewer - Cost effective removal of inflow sources; reconnection to storm sewers

FY 1989 FUNDABLE LIST SUMMARY OF FUNDS

I. Estimated EPA Assistance Required			
A. Estimated assistance for projects on fundable list			$35,504,160
B. Designated reserve for grant increases			3,536,708
C. Reserve for grant increases for alternative technology	FY 1988 Allotment	$1,017,089	1,561,077
	FY 1989 Allotment	$ 543,988	
D. Reserve for grant increases for innovative technology	FY 1987 Allotment	$ 89,643	
	FY 1988 Allotment	$ 155,425	322,781
	FY 1989 Allotment	$ 77,713	
E. Reserve for state management assistance 205(g)	FY 1987 Allotment	$1,314,048	
	FY 1988 Allotment	$1,314,048	3,285,120
	FY 1989 Allotment	$ 155,425	
F. Reserve for water quality Management 205(j)(1)	FY 1988 Allotment	$ 310,850	466,275
	FY 1989 Allotment	155,425	
G. Reserve for non-point source management 205(j)(5)	FY 1988 Allotment	$ 310,850	466,275
	FY 1989 Allotment	$ 155,425	
H. Reserve for advances of allowances (no need projected for FY 1989)			
Total grant needs			$45,222,396
II. Non-additive Set-Aside Reserve Funds			
A. Reserve for alternative systems for small communities	FY 1988 Allotment	$1,243,400	
	FY 1989 Allotment	$ 621,700	
		$1,865,100	
B. Quota for unsewered communities	FY 1988 Allotment	$1,554,250	
	FY 1989 Allotment	$ 777,125	
		$2,331,375	
III. Available Funds			
A. FY 73-86 Carryover (5/01/88)			$ 115,096
B. FY 1987 Allotment Balance (5/01/88)			1,414,043
C. FY 1988 Allotment Balance (5/01/88)			28,150,757
D. Anticipated FY 1989 Allotment			15,542,500
			$45,222,396

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST
DISCHARGER RANKING

Points	Project	Points	Project	Points	Project	Points	Project
1.49	Calmar	.812	Van Horne	.507	Russell	.224	Hawkeye
1.47	Williamsburg	.782	Promise City*	.464	Marne*	.217	Shambaugh*
1.42	Griswold	.769	St Anthony	.462	Rose Hill*	.215	Persia*
1.37	Palmer*	.724	Alta Vista	.452	Swaledale*	.198	Zarahemville
1.34	Evandale	.714	Oran SSD*	.429	Hedrick	.195	Winthrop
1.24	Marcus	.643	Riverton*	.419	LeGrand	.187	Lawton
1.16	Bouton*	.633	Webb*	.416	Paosta*	.168	Euline*
1.05	[illegible]*	.611	Center Point	.397	Essex	.150	Portsmouth*
.988	Lucas*	.610	Williamson*	.391	Grant	.150	Ossian
.966	Melrose*	.580	Graf*	.390	East Peru*	.148	Gruver*
.965	Earlham	.578	Larchwood	.368	Hastings*	.120	Spring Hill*
.953	Walnut	.574	State Center	.358	Ayershire*	.099	Lehigh
.941	Colo	.566	Lincoln*	.321	Masonville*	.098	Readlyn
.908	Scranton	.545	Albion	.294	Adair	.083	Stanhope
.862	Lake View	.541	Grand Junction	.278	Grand Mound	.078	Maple Heights SSD*
.847	Maysville*	.513	Havelock*	.226	Spragueville	.077	McCausland

* Unsewered Community

The only "narrowly tailored" rules at this time are those specified in 567--62.2(455B).

Amend paragraph "a" of subrule 4.13(2) by inserting the words "Reference to" in place of "Copies of."

ITEM 2. Adopt a new chapter 561--5(17A), as follows:

CHAPTER 5
PETITIONS FOR RULE MAKING

Insert the petitions for rule making segment of the Uniform Administrative Rules which are printed in the front of volume I of the Iowa Administrative Code, with the following amendments:

The agency contact for 5.5(1), 5.6(3), 5.11(1) or other unspecified rule making matters is the Government Liaison Bureau, Coordination and Information Division, Department of Natural Resources, 900 East Grand Avenue, Des Moines, Iowa 50319-0034, phone 515/281-8941.

The agency name is Iowa Department of Natural Resources.

May 6, 1988

Larry J. Wilson, Director

Motion was made by Catherine Dunn to approve Final Rule--Chapter 4, Rulemaking Procedures and Chapter 5, Petition for Rulemaking. Seconded by Nancylee Siebenmann. Motion carried unanimously.

STATUS REPORT ON IOWA CITY CASE

James Combs, Division Administrator, Coordination and Information Division, presented the following item.

James Combs reported that Iowa City has agreed to and signed a consent decree with the department.

LEGISLATIVE UPDATE

James Combs, Division Administrator, Coordination and Information Division, presented the following item.

Mr. Combs stated that SF-2092, in regard to the State Revolving Fund, was effectively not changed by the General Assembly nor was there any impact by the Governor's veto. Mr. Combs provided the Commissioners with a copy of the bill along with a copy of the letter from Governor Branstad explaining his reasons for item veto.

Mr. Combs stated that in regards to HF-2441 the Governor vetoed most of the legislation. Mr. Combs explained that it retains the registration amnesty program. Section four gives the department authority to require corrective action deemed reasonable, if necessary, when a release or threatened release from underground storage tanks is found. Mr. Combs explained other provisions

ADM-1-1-1
May 1988

MINUTES
ENVIRONMENTAL PROTECTION COMMISSION
Wallace State Office Building
Des Moines, Iowa
May 16-17, 1988

The meeting of the Environmental Protection Commission was held at the Wallace State Office Building in Des Moines, Iowa on May 16 and 17, 1988 convening at 3:00 p.m. on Monday, May 16.

MEMBERS PRESENT

Clark Yeager, Catherine Dunn, Charlotte Mohr, Robert Schlutz, Richard Timmerman, Donna Hammitt, Nancylee Siebenmann, Keith Uhl.

MEMBERS ABSENT

Gary Priebe

ADOPTION OF AGENDA

Motion was made by Richard Timmerman to approve the agenda as presented. Seconded by Charlotte Mohr. Motion carried unanimously.

APPROVAL OF MINUTES OF APRIL 25-26, 1988

Director Wilson notified the Commission that the minutes of April 25-26, 1988 were not ready due to equipment failure and that they will be presented for approval next month.

ELECTION OF CHAIRPERSON, VICE-CHAIRPERSON, AND SECRETARY

Chairman Schlutz turned the meeting over to Vice-Chairman Richard Timmerman for election of Chairperson.

Vice-Chairman Timmerman asked for nominations for Chairperson.

Motion was made by Nancylee Siebenmann to reinstate Robert Schlutz as Chairman. Seconded by Catherine Dunn.

Motion was made by Charlotte Mohr to cease nominations. Seconded by Catherine Dunn. Motion carried unanimously.

Vice-Chairman Timmerman requested vote on the nomination for Robert Schlutz as Chairman. Motion carried with Robert Schlutz abstaining.

Vice-Chairman Timmerman turned the meeting over to Chairman Schlutz.

Charlotte Mohr nominated Richard Timmerman for Vice-Chairman. Seconded by Catherine Dunn.

Motion was made by Nancylee Siebenmann to cease nominations. Seconded by Donna Hammitt. Motion carried unanimously.

ATTACHMENT A

WASTE MANAGEMENT AUTHORITY DIVISION
IOWA DEPARTMENT OF NATURAL RESOURCES

ORGANIZATION CHART

Division Administrator

Ruth Larson Bender
Teresa Hay (after 6/1/88)
515/281-8975

Planning Unit

Connie Cousins-Leatherman
Lead Worker/Env. Spec. III
515/281-8489

Scott Cahail
Program Planner I
515/281-8263

1 Environmental Specialist I
Vacant
2 Program Planner I's
Vacant

Program and Grants Unit

Stuart Schmitz
Lead Worker/Env. Spec. III
515/281-8499

Bob Meddaugh
Program Planner I
515/281-8176

1 Environmental Specialist I
Vacant
2 Program Planner I's
Vacant

Enforcement Report Update

The following new enforcement actions were taken last month:

Name, Location and Field Office Number	Program	Alleged Violation	Action	Date
Lee Stinson, Iowa Falls (2)	Solid Waste	Operation w/o permit, open dumping.	Order	4/01/88
Mike's Prairie Home, Ollie (6)	Drinking Water	Monitoring/reporting-nitrate.	Order/Penalty	4/14/88
Beaver Hills Country Club, Cedar Falls (1)	Drinking Water	Monitoring/reporting-nitrate.	Order/Penalty	4/14/88
Hills School, Iowa City (6)	Drinking Water	Monitoring/reporting-nitrate.	Order/Penalty	4/14/88
Hawkeye Motel & Reisch Auction, Mason City (2)	Drinking Water	Monitoring/reporting-nitrate.	Order/Penalty	4/14/88
City of Braddyville (4)	Drinking Water	Monitoring/reporting-radioactivity.	Order/Penalty	4/14/88
Sunrise Trailer Park, Cedar Rapids (1)	Drinking Water	Monitoring/reporting-radioactivity.	Order/Penalty	4/14/88
Twelve Mile House, Bernard (1)	Drinking Water	MCL - Benzene	Emergency Order	4/21/88
City of Iowa City (6)	Wastew	MIP	Referred to AG	4/26/88
Lakewood Sanitary District (5)	Wastew	Maintenance	Referred to AG	4/26/88
City of Mt. Pleasant (6)	Wastewater	MIP	Referred to AG	4/26/88
Ellies Bar and Grill, Lamoni (5)	Drinking Water	Failure to monitor, MCL-bacteria.	Referred to AG	4/26/88
City of Sheldon (3)	Wastewater	Monitoring	Referred to AG	4/26/88

Summary of Administrative Penalties

The following administrative penalties are due:

NAME/LOCATION	AMOUNT	DUE DATE
*Shelter Shield (Buffalo Center)	$1,000	12-03-86
*Cedar Hills Apartments (Dubuque)	1,000	12-29-86
*City of Dysart	400	3-13-87
*Country Corner Cafe (Pacific Junction)	451	8-05-87
*JTM Indust./MacDade/Leamer (Pleasant Valley)	1,000	8-12-87
*Big Rock Tap	660	9-21-87
*Twelve Mile House (Bernard)	339	10-28-87
*OK Lounge (Marion)	448	11-01-87
*City of Sheldon	900	1-02-88
*Ellie's Bar and Grill (Grand River)	915	3-05-88
Donald Caraway (Linn County)	500	3-08-88
City of Lynnville	225	3-13-88
**Lawrence Payne (Ottumwa)	630	3-15-88
**Don Scribner (Nashua)	1,000	3-28-88
**Elings/Catron/Frey (Des Moines)	400	4-15-88
Breitbach's Tap (Sherrill)	230	4-19-88
Camp Okoboji	230	4-22-88
David Franey (New London)	800	4-26-88

* Referred to the Attorney General
** On Payment Schedule

"Site" means any location, place or tract of and used for collection, storage, conversion, utilization, incineration or landfilling of solid waste, to include the landfill area, nonfill work areas, borrow areas plus a 100-foot-wide perimeter surrounding the working areas or the property line if it is closer than 100 feet to the working areas.

"Soil boring" means a hole placed into the subsurface for the purpose of determining subsurface characteristics.

"Specific yield" is the ratio of the volume of water that a given mass of saturated rock or soil will yield by gravity to the volume of that mass. This ratio is stated as a percentage.

"Standard deviation" means the square root of the variance.

"Storage coefficient" is the volume of water an aquifer releases from or takes into storage per unit surface area of aquifer per unit change in head.

"Transmissivity" is the rate at which water is transmitted through a unit width of an aquifer under a unit hydraulic gradient.

"Tremie tube" means a pipe used to fill the annular space in a well from the bottom up.

"Unconfined aquifer" means an aquifer which does not have a confining bed above it. The level of water in a well in an unconfined aquifer is below the top of the aquifer formation.

"Unsaturated zone" is the subsurface zone above the water table in which the interstitial spaces are only partially filled with water.

"Upgradient" means direction of increasing hydraulic head.

"Upgradient well" means a well which is capable of yielding groundwater samples that are representative of regional conditions and are not affected by the landfill site. Such a well is typically placed upgradient of the site, if possible, and, if not, is placed as near the site as feasible.

"Variance" means the sum of the differences between the actual measurement and the mean divided by one less than the number of measurements.

"Water table" means the water surface below the ground at which the unsaturated zone ends and the saturated zone begins.

"Zone of saturation" is the subsurface zone below the water table in which the interstitial spaces are completely filled with water.

ITEM 2. Amend subrule 103.2(1) by adding the following new paragraphs "l" and "m." Reletter existing paragraph "l" as new paragraph "n."

l. Information indicating that the portion of the landfill site to be filled is not situated in an unconsolidated sequence that will permit more than 0.004 cubic foot of liquid per day per square foot of area downward leakage into the groundwater beneath or adjacent to the proposed site.

1. The potential downward leakage shall be evaluated by means of the generalized Darcy's law $Q = P\frac{(H_2 - h_1)}{L} A$ where:

Q = feet of liquid/day/square foot of area of the interface

A = one square foot of area at the base of the landfill

P = coefficient of permeability of the unconsolidated confining unit above the high-water table

h2 = maximum final elevation of a contiguous portion of fill of the site

h1 = lowest elevation of the top of the confining unit above the high-water table

L = minimum thickness of the confining unit above the high-water table.

b. After the plan has been approved by the department, the owner or operator shall implement the plan according to the schedule in the plan.

c. Within 30 days after the activities prescribed in the groundwater assessment plan have been completed, the owner or operator shall submit a written groundwater quality assessment report to the department.

d. If the department determines that no waste or waste constituents from the facility have entered the groundwater, the owner or operator shall reinstate the routine monitoring program.

If the department determines that waste or waste constituents have been released from the facility and have entered the groundwater, the owner or operator shall continue to make the determinations described by the assessment plan and develop a remedial action/mitigation plan to alleviate or reduce contamination to the fullest extent possible.

103.2(10) Postclosure monitoring requirements.

a. At least six months prior to closing the site, the owner or operator of a sanitary landfill shall submit a plan to the department for approval detailing a 30-year postclosure monitoring program.

b. The department will review the facility's postclosure monitoring records at five-year intervals to determine if changes in the monitoring frequencies or parameters are required.

c. The commission may adopt rules on a site-specific basis identifying additional monitoring requirements for sanitary landfills for which the postclosure monitoring period is to be extended.

ITEM 5. Amend rule 103.3(455B) by deleting subrule 103.3(1) in its entirety and renumber remaining subrules accordingly.

ITEM 6. Amend rule 103.4(455B) by deleting subrule 103.4(1) in its entirety and renumber remaining subrules accordingly.

ITEM 7. Amend rule 103.5(455B) by deleting subrule 103.5(1) in its entirety and renumber remaining subrules accordingly.

ITEM 8. Add the following part of new Chapter 110, "Design, Construction and Operation Standards for Solid Waste Management Facilities."

Chapter 110

Design, Construction and Operation Standards
For Solid Waste Management Facilities

567--110.1(455B) This chapter pertains to the hydrologic monitoring system standards for solid waste disposal facilities.

567--110.2(455B) Hydrologic monitoring system planning requirements.

110.2(1) All plans, specifications and other documentation required herein must be developed by an engineer registered in Iowa.

110.2(2) All sanitary disposal projects shall conduct a soil and hydrogeologic investigation which conforms to the requirements of this chapter. The purpose of soil and hydrogeologic investigation is to obtain migration from a site via groundwater. The following items are minimum requirements for such investigations. Additional work and use of other methods (e.g., geophysical techniques) are encouraged.

567--110.3(455B) Soil investigation.

110.3(1) Soil borings.

a. Number of borings. A sufficient number of soil borings shall be made to accurately identify the hydrogeologic variations of the site. For new sites, the minimum number of borings required is 10 for sites of 10 acres or less, 20 for sites of 10 to 50 acres, and 20 plus for additional boring for every 10 monitoring wells do not intercept most vertical flow paths from the site. In such situations, monitoring wells shall be placed at the appropriate depths to intercept the remaining flow paths and shall be spaced at no more than 600 feet apart.

110.10(5) Upgradient monitoring wells. Upgradient monitoring wells shall not be affected by the site. At least one upgradient monitoring well shall be installed into each stratum being monitored by downgradient monitoring wells. If it is not possible to actually locate a monitoring well upgradient of the site, the well should be placed as near the site as feasible without being affected by the site.

110.10(6) Monitoring point identification system. The various types of monitoring points should be identified as follows:

Monitoring well	MW#__
Surface Water Monitoring Point	SW#__
Piezometer	PZ#__

Each monitoring point must have a unique number, regardless of the type of monitoring point, and that number must never change.

567--110.11(455B) Monitoring well/soil boring construction standards.

110.11(1) General considerations.

a. Contractors involved in construction of monitoring wells and piezometers and soil boring activities shall be registered with the department as required in 567--Chapter 37, Iowa Administrative Code.

b. To the extent possible, all monitoring well construction materials must not absorb, desorb, react or otherwise alter the quality of the groundwater being sampled. Galvanized metal, glues, welding solvents, pipe thread lubricants and other foreign substances must not be used.

c. All monitoring well construction materials must be protected from contamination prior to installation.

d. A typical cross section of a properly constructed monitoring well is shown in Figure 1.

110.11(2) Casings.

a. As a minimum, the diameter of the inner casing (see Figure 1) of a monitoring well must be at least two inches.

b. Plastic cased wells must be constructed of materials with threaded, nonglued joints which do not allow water infiltration under natural subsurface pressure conditions or when the well is evacuated for sampling.

c. Well casings must provide structural stability to prevent casing collapse during installation as well as drill hole integrity when installed.

d. Well casings must be constructed of inert materials such as polytetrafluorethylene, stainless steel or polyvinyl chloride. The department may approve other casing materials if the owner or operator can demonstrate the material has a low potential for biasing the water quality parameters of samples. The department may approve the construction of composite well casings (casings with less inert materials in the unsaturated zone).

110.11(3) Well screens.

a. Slot size will be based on sieve analysis of the sand and gravel formations or filter pack. The slot size must hold out 35 percent to 60 percent of the formation material and not less than 90 percent of the filter pack.

b. Slot configuration and open area must permit effective development of the well.

c. Screen length. Maximum screen length shall be 10 feet except for water table wells in which the screen must be of sufficient length to accommodate

6. (1) **COMMENT**: Re: "Piezometers" (def) A driven well point can not be utilized as a piezometer because it is not sealed. Also plugging of the screen can occur.

RESPONSE: The definition as proposed clearly states that the well must be sealed along the entire length. It will depend upon the cohesiveness of the overlying soils as to whether or not this latter construction technique will meet the first condition. As this may not be achievable in certain situations using driven wells, we will review proposed techniques on a site specific basis.

RECOMMENDED ACTION: Delete last sentence of definition.

7. (2) **COMMENT**: Re: "Potentiometric surface" (def) Substitute the following..."is an imaginary surface that represents the total head of ground water in a confined aquifer that is defined by the level to which water will rise in wells and piezometers."

RESPONSE: The suggested definition concludes by defining the term essentially as it is in the proposed rule. We are not convinced that the reference to "total head of ground water" adds clarity.

RECOMMENDED ACTION: No change.

8. (2) **COMMENT**: Re: "Specific yield" (def) The definition as proposed is incorrect. The following definition is suggested. "Specific yield is the ratio of the volume of water that a given mass of saturated rock or soil will yield by gravity to the volume of that mass. This ratio is stated as a percentage."

Re: "Storage coefficient" (def) The definition as proposed is incorrect. The following definition is suggested. "Storage coefficient is the volume of water an aquifer releases from or takes into storage per unit surface area of aquifer per unit change in head."

Re: "Transmissivity" (def) The definition as proposed is overly simplistic. The following definition is suggested. "Transmissivity is the rate at which water is transmitted through a unit width of an aquifer under a unit hydraulic gradient."

RESPONSE: The proposed language was intended for the non-technical landfill officials. The suggested language is more technically precise.

RECOMMENDED ACTION: Change per suggested definitions presented above.

9. (1)(2) **COMMENT**: Re: "Unconfined Aquifer" (def) The use of the term confined aquifer in the second line of the definition as proposed should refer to an unconfined aquifer. The definition as proposed is incorrect and unclear. The suggest definition should define the term as an aquifer where the water table is exposed to the atmosphere through openings in the overlying materials.

RESPONSE: The use of the word "confined" was inadvertent and should have been "unconfined".

RESPONSE: If monitoring data indicates that a deterioration of ground water quality is occurring by comparison of upgradient and downgradient conditions, and if no other contributory influences can be identified except the landfill, we believe that leachate migration is occurring. A clear and definitive situation meeting all of the aforementioned criteria at one time is unlikely. For this reason, a determination that leachate migration is occurring will necessarily be more qualitative than quantitative. We do not believe that the department has the regulatory discretion to impose the extensive requirements of an assessment plan prior to confirmation of leachate migration by monitoring.

RECOMMENDED ACTION: No change.

20. (1) **COMMENTS:** Re: Section 103.2(9) It is suggested that "noncontamination" and "nondeterioration" are inappropriate standards for landfills. It is deemed a major point that 1) a standard be established and 2) a reasonable belief exist that the standard is being violated beyond the property boundary, prior to requiring the development of a remedial action plan.

RESPONSE: The Ground Water Protection Bill clearly requires protection of ground water to the maximum extent practical. We do not accept the premise that avoidable or reversible contamination is impractical to prevent or remove below a set limit. Our approach is to require a ground water assessment plan only when leachate or contaminant migration is substantiated by monitoring data.

RECOMMENDED ACTION: No change.

21. (1)(2) **COMMENTS:** Re: Section 103.2(10) (as amended) Submittal of a post-closure plan 6 months prior to planned closure is considered to be excessibly long. (per Crane et al) Owners or operators should be required to develop a post-closure monitoring plan within 12 months of the effective date of the rule, or initial receipt of waste, whichever is later. It is felt that a 30-year post-closure period is overly stringent (per Repa).

RESPONSE: The Ground Water Protection Bill mandates 30-year post-closure monitoring at all permitted landfills. This cannot be changed by rule.

The 6 month requirement for a post-closure monitoring plan is not excessive. This allows for the department to receive the plan and require additional information if the submitted information is inadequate. It is conceivable that additional monitoring wells or piezometers may have to be installed.

RECOMMENDED ACTION: No Change.

22. (1)(2)(3) **COMMENTS:** Re: Section 110.3(1) (as proposed) The rule as proposed does not insure that the site will be adequately monitored. The number, depth, and method of boring should be cited as guidance only. All of these parameters must be established on a site specific basis if they are to be adequate to monitor the site. It is not clear whether

1988, and the new proposed rules were now before the Commission for adoption in final form.

Mr. Stokes stated that they heard three main comments regarding the rules: 1) some of the items in the rule are not correct in a technical sense -- this is a difference of opinion in definitions or equations; 2) dealt with the number of parameters required for sampling; 3) disagreement with the number of wells required for each facility.

Mr. Stokes displayed charts showing three example cases for monitoring at different sized landfills, along with costs that would be incurred in each case. Example for facility "A" would cost overall (total 40-year cost) $420,200 or 38¢/ton; facility "B" would cost $786,600 or 25¢/ton; facility "C" would cost $209,100 or $3.65/ton.

A lengthy discussion followed regarding topics such as: financial impact up-front for existing facilities; prevention rather than after-the-fact regulation; stringency in relation to forthcoming federal rules; costs for small landfills and possibility of putting them out of business; need for third party technical input; Commission's responsibility of protecting the environment and balancing costs; consolidation of landfills; and more information on the number of wells needed at individual landfills.

The main concern of the Commission was in regards to the economic impact this would have on small landfills, and they felt that more information is needed to make a decision on adopting the rules.

Discussion followed on options available in regards to rulemaking.

Mr. Stokes stated that there is no statutory deadline for implementing the rules, but if they are not passed today they will need to go back through the 180-day rulemaking process.

Mr. Stokes stated that an economic impact statement could be prepared while the rules go through the rulemaking process again, if the Commission so wishes.

Motion was made by Richard Timmerman to withdraw Final Rule--Chapter 100, 103 and 110, Groundwater Monitoring at Sanitary Landfills. Seconded by Clark Yeager.

Keith Uhl stated that if the Commission votes to withdraw the rules, he would urge people to participate in the rulemaking process. He added that phantom conversations with a Commissioner about economic costs of the rules does the department no good and the rulemaking process no good. Mr. Uhl related that if there are economic problems, people should say so in their objections in the public hearing process. He stated that there is not one comment in the responsiveness summary regarding economic problems.

Director Wilson stated that he would like to hear what the department is expected to provide if the rules are withdrawn.

Chairman Schlutz stated that the Commission will discuss their desires regarding the rules at the end of the meeting.

PROPOSED

STATE OF IOWA

IOWA DEPARTMENT OF NATURAL RESOURCES

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

FOR COMMENT AT PUBLIC HEARING

CONSTRUCTION GRANTS FUNDING SUMMARY

The attached funding summary is condensed from the proposed Fiscal Year 1989 State Project Priority List It includes, in priority order, projects anticipated to be funde h available federal allotments through Fiscal Year 1989. Projects he Fiscal Year 1988 Fundable List which have not been awarded a gr hown in the first column. Projects in the second columb comprise the posed Fiscal Year 1989 Fundable List, providing a federal appropriation is made. The Fiscal Year 1989 Fundable Lsit is based on an assumed allotment of $15,542.500 for Fiscal Year 1989.

It is emphasized that the list as shown is dependent upon appropriation of the full Fiscal Year 1989 federal authorization and the allotment of $15,542,500 for Iowa.

COLUMN	DESCRIPTION
Sml Comm	Identification of a project as eligible for increased grant funding from the reserve set aside for small communities proposing alternative to conventional wastewater handling systems. R indicates an eligible community of 3,500 people or less. D indicates eligibility of a sparsely populated area of a larger municipality.
Innov Elig Cost Altern Elig Cost	Innov Elig Cost - Projected portion of a project qualifying as innovative technology by EPA guidelines. Altern Elig Cost - Projected portion of a project qualifying as innovative technology by EPA guidelines.
Total Eligible Cost	Projected costs eligible for EPA grant particiption.
Est EPA Assist	Estimated amount of EPA grant assistance required for the project.
Elig Cost by Needs Cat	Category: I - Secondary Treatment II - More Stringent Treatment IIIA - Infiltration/Inflow Correction IIIB - Major Sewer System Rehabilitation IVA - New Collectors and Appurtenances IVB - New Interceptors and Appurtenances V - Correction of Combined Sewer Overflows
Enf Req	Enforceable requirement to be satisfied by the project: A - Project satisfies the conditions or limitations of a Section 402 or 404 permit which, if violated, would result in the issuance of a compliance order or initiation of a civil or criminal action under Section 309 of the Clean Water Act. B - Permit has not been issued, but project satisfies a condition or limitation which would be included in the permit when issued. C - Permit is not applicable but project satisfies a requirement anticipated to be necessary to meet applicable criteria for best practicable waste treatment technology. D - Project does not meet an enforceable requirment of the Act. T - The project, in its entirety, satisfies the enforceable requirements of the Act for the condition stated in the preceding character position. P - Portions of the project do not satisfy the enforceable requirement of the condition stated in the preceding character position. technology.

FISCAL YEAR 1988

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank ([illegible]) / Priority Points ([illegible])	Applicant Legal Name / County Name / Street Address / City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (C1) / Auth/Fac. No. (38)	Grant Number Parent Project (82)	Project Number (08, 01, 54) 03 - 0	Step (07) / Type (04)	St Cert (A5)	Proj Desc (20)	Sal Comm (33)	Innov Elig Cost (T7) / Altern Elig Cost (T8)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (Y0-Y6)	Ref Req
[illegible] [illegible]	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA772700[illegible] MULTIPLES	C190709 10	C190709 55 Amend 1	3 C		T Segments 5,6A			18,806,000	14,104,500	I 18,806,000	AF
[illegible] [illegible]	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA772700[illegible] MULTIPLES	C190709 10	C190709 56	3 C		I Saylor Creek Phase 1			400,000	300,000	IVB 400,000	AF
[illegible] [illegible]	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA772700[illegible] MULTIPLES	C190709 10	C190709 57	3 C		I, IIB Area C			1,860,000	1,395,000	IVB 1,860,000	AF
[illegible] [illegible]	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA772700[illegible] MULTIPLES	C190709 10	C190709 58	3 C		I,IIB Highland Hills Phase 1			1,100,000	825,000	IVB 1,100,000	AF
[illegible] [illegible]	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA772700[illegible] MULTIPLES	C190709 10	C190709 59	3 C		I,LS,IIB Westside			12,180,000	9,135,000	IVB 12,180,000	AF
[illegible] [illegible]	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA772700[illegible] MULTIPLES	C190709 10	C190709 60	3 C		I Westside N Br FM			4,020,000	3,015,000	IVB 4,020,000	AF

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST
DISCHARGER RANKING

Points	Project	Points	Project	Points	Project	Points	Project
[illegible]	[illegible]	.045	Little Sioux*	.018	Palo	.005	Slater
[illegible]	Keota	.042	Clarence	.016	Farragut	.001	Harpers Ferry*
[illegible]	Millerton*	.038	Shellsburg	.014	Pleasanton*	.001	Eldon
[illegible]	Lockridge*	.038	[illegible]	.010	New Liberty*	.0003	Morley*
[illegible]	Monroe	.035	[illegible]	.007	Kirkville*	.0000	Mondamin
[illegible]	[illegible]*	.025	Atkins	.007	Bellevue	.0000	Leland
[illegible]	Larrabee	.025	Ireton	.006	Redfield	.0000	[illegible]
[illegible]	Ollie*	.022	Ogden	.006	Alleman*	.0000	Whittier SSG*

* Unsewered Community

in the bill, and provided Commissioners a copy of the bill along with a copy of the letter from Governor Branstad explaining his reasons for item veto.

SLIDE PRESENTATION, ROADSIDE VEGETATION MANAGEMENT

James Combs, Division Administrator, Coordination and Information Division, presented the following item.

Mr. Combs introduced Steve Dermand, County Conservation Board Coordinator for the Coordination and Information Division.

Mr. Dermand explained that the development of the slide show was a cooperative effort of some of the county conservation boards and the DNR staff. The cost of the program was funded entirely by private dollars. It is an educational-type program, light and entertaining. Initially, ten copies of the slide presentation were made. Each of the six county conservation districts have a copy as well as the Black Hawk County Conservation Board; the remaining three copies are kept in the DNR central office. An additional 14 copies are now being prepared for further distribution.

MEETING REPORT -- CHEEC

Nancylee Siebenmann reported that she attended a CHEEC meeting on May 10, and this group has downgraded their expectations in terms of funding and have now reappropriated a new budget. They are looking at a system of data management to be shared with the medical school. Their primary discussion centered on what they would like to do in linking to the private water well survey that this Commission approved last month. Mrs. Siebenmann expanded on what they hope to define in linking with that survey.

BIENNIAL REPORT -- "WATER QUALITY IN IOWA DURING 1986 AND 1987"

Allan Stokes, Division Administrator, Environmental Protection Division, presented the following item.

Section 305(b) of the Clean Water Act requires all states to submit a biennial report on the water quality of each water body in the state. The 305(b) report due on April 1, 1988 has been submitted to U.S. EPA Region VIII.

The water quality report summarizes Iowa water quality during the years 1986 and 1987. Each type of water body in the state (stream, lake, wetland, reservoir) was assessed by use of a computerized data system for at least the following factors: whether designated water body uses were supported, whether Clean Water Acts goals were met, and whether or not toxic pollutants were monitored. Assessments of use were based either on actual chemical monitoring data or on objective evaluation.

Results of this assessment were detailed in the report and supplemented with information on sources of impacts and programs to address impairments.

A summary of the report will be present at the May, 1988 meeting.

Chairman Schlutz requested vote on the nomination for Richard Timmerman as Vice-Chairman. Motion carried with Richard Timmerman abstaining.

Richard Timmerman nominated Charlotte Mohr for Secretary. Seconded by Catherine Dunn.

Motion was made by Catherine Dunn to cease nominations and that Charlotte Mohr be elected by unanimous vote. Seconded by Donna Hammitt. Motion carried unanimously.

DIRECTOR'S REPORT

Director Wilson introduced Teresa Hay, the new Division Administrator of the Waste Management Authority Division and gave a brief background on Teresa.

Director Wilson reported that he, the Deputy Director, Division Administrators, and a representative from the Department of Management spent two days on a retreat session at the Rathbun State Fish Hatchery last week. One of the items discussed at the retreat was legislation items for 1989. Director Wilson stated that all conceptual items are due to be submitted to him by July 1. These will be brought before the EPC and NRC Commissions at their July meeting. The intention is to have the items (approved by the Commissions) in bill form and ready for final approval, by each Commission, in August. Director Wilson suggested that the Chairman may want to appoint a committee of Commissioners to work with staff on legislation.

Charlotte Mohr inquired about the status of the Monroe County zoning situation. Director Wilson responded that he and several staff people went to District Court about this last week. The outcome was that the court did not order the department to issue a permit. The permit, however, went out last Friday to Star Coal Company. Monroe County has an ordinance that prohibits backfilling a coal excavation with landfill. As in all zoning ordinances, there is a route for an appeal and a variance to be granted. Star Coal had wanted the permit before the zoning ordinance went into place.

Director Wilson distributed copies of a progress report on the Groundwater Protection Act.

COMPUTER SYSTEM OVERVIEW

Mark Slatterly, Budget and Grants Bureau Chief, Administrative Services Division, presented the following item.

During the past two years, a number of separate personal computer procurements have been presented for your review and approval. It is difficult to understand each procurement without having an understanding of the general picture regarding Data Processing and Personal Computers in the DNR. This item is being presented as an aid to understanding the direction the DNR has taken with regard to Data Processing and personal computers.

At the time of reorganization, IWAWM had a significant number of IBM personal computers and CPT word processors. The ICC had five NBI Personal Computers, and a variety of older IBM word processing equipment. The Energy Policy

ATTACHMENT B

WASTE MANAGEMENT AUTHORITY DIVISION
IOWA DEPARTMENT OF NATURAL RESOURCES

MISSION AND DUTIES

Mission

To promote the proper and safe storage, treatment, and disposal of solid, hazardous and low-level radioactive waste in Iowa. In carrying out its mission, the Waste Management Authority Division will emphasize the hierarchy of waste management priorities in the following order of preference: 1) volume reduction at the source, 2) recycling and reuse, 3) combustion with energy recovery and/or treatment to make nonhazardous, 4) combustion for volume reduction, and 5) land disposal or long term storage.

Duties

Planning:

* Hazardous waste comprehensive plan
  Feasibility report - due 4/1/88
  Capacity Assurance requirements
  Facility site identification and siting
* Solid waste comprehensive plan
  Local comprehensive planning guidelines
* Midwest Interstate Low-Level Radioactive Waste Compact
* Household hazardous materials program rule development
* Small Business Assistance Center
  Plan - due 1/15/88
  Representative for DNR on Advisory Committee
* State agency recycling program
* Product packaging complaint mediation
* Central repository and information source

Grants and Projects:

* Local solid waste grants promoting alternatives to land disposal
* Solid waste comprehensive plan assistance and review
* Household hazardous materials program
  Consumer information program
  Toxic Cleanup Days and recycling/reclamation events
* Cooperative effort with DOT on used oil collection program
* Beverage container deposit program
* General public information and outreach

Administrative Penalties Due (Continued)

NAME/LOCATION	AMOUNT	DUE DATE
White Consolidated Industries (Webster City)	500	4-30-88
**Pleasant Creek Estates (Shellsburg)	200	4-30-88
Lake Hendricks Park (Howard Co.)	50	5-05-88
DeWitt Moose Lodge (DeWitt)	560	5-16-88
Vernon Heights MHP (Cedar Rapids)	1,000	5-09-88
Fred Iben (Monticello)	100	5-20-88
63-I80 Truckstop (Poweshiek Co.)	1,000	5-21-88
City of Orchard	580	5-15-88
Linn Hollow MHP (Washington)	75	6-01-88
*Chico's Supper Club (Burr Oak)	954	6-10-88
Clear View Acres Store (Delhi)	230	-------
Hills School (Iowa City)	100	6-18-88
Beaver Hills Country Club (Cedar Falls)	75	6-18-88
Mike's Prairie Home (Ollie)	100	6-16-88
Braddyville, City of	100	6-16-88

The following administrative penalties have been appealed:

NAME/LOCATION	AMOUNT
Handi-Klasp, Inc. (Webster City)	1,000
Iowa City Regency MHP	1,000
Bianchi Meyrat Lagoon (Des Moines)	600
Thomas E. Lennon (Barnum)	700
Great Rivers Coop (Atavia)	1,000
City of Wapello	500
Wilfred McFee (Union Co.)	500
Richard Davis/1st Iowa State Bank (Albia)	1,000
Gradert, Ernest and Kevin (Sibley)	500
Stan Moser (Hudson)	250
City of University Park	500
South Central Iowa Landfill Agency	1,000
Cloyd Poland (Decatur)	800
Lynn Hennenga Feedlot (Wright Co.)	600
Hotel Grinnell	1,000
Land O' Lakes, Inc. (Ellsworth)	1,000
Harry Brouka (Dumont)	800

*Referred to the Attorney General
**On Payment Schedule

The following administrative penalties were paid in April:

NAME/LOCATION	AMOUNT
City of Sidney	$ 250
City of Brighton	700
City of Tabor	250
Broadview Trailer Court (Dubuque)	1,000
Howard Bell, d/b/a Bell Ready Mix Cement	300
Timberline Assoc. Ltd. (W. Burlington)	1,000
City of Fairfield	1,000
Blackhawk Foundry & Machine Co. (Davenport)	1,000
The Meadows, Inc. (Moville)	125
Fred Iben (Monticello)	100
Benton County Care Facility	50
Hawkeye Motel & Reisch Auction Co. (Mason City)	50
The Dubinger Co. (Keokuk)	650
Hardin Co. SLF (Eldora)	250
Wayne, Ringgold & Decatur Co. SW Mgmt. Comm.	1,000
Sunrise Trailer Park (Cedar Rapids)	100
Pla-Mor Bowl (Iowa Falls)	50
Randy's Bluffton Store (Decorah)	50
TOTAL	$7,925

The penalties assessed to Otter Creek Station and Mike Vanderpool Construction were rescinded.

2. Should conditions in violation of this paragraph exist, the original plan must detail how the site is to be engineered to provide equal protection to the water resources.

m. The required soil and hydrogeologic design information specified in chapter 110.

ITEM 3. Amend subrule 103.2(2) by deleting paragraphs "j" and "k," and relettering the remaining paragraphs.

ITEM 4. Amend rule 103.2(455B) by adding the following subrules:

103.2(3) Hydrologic monitoring system. The owner or operator of a solid waste disposal facility shall operate and maintain a hydrologic monitoring system which includes a sufficient number of groundwater monitoring wells and surface water monitoring points to determine the impact, if any, that the sanitary disposal project is having on the adjacent waters. The hydrologic monitoring systems shall enable early detection of the escape of pollutants from a sanitary landfill.

The hydrologic monitoring system shall be planned, designed and constructed in accordance with the provisions of Chapter 110(455B). A hydrologic monitoring system plan shall be submitted to the department for review and approval with any application for a new permit, with an application for permit amendments which involve major lateral and/or vertical expansion, with application for permit renewal, or within 120 days of receiving notice from the department. These requirements apply to any sanitary landfill in operation after July 1, 1987. Within 90 days after the hydrologic monitoring system plan is approved by the department, the construction of hydrologic monitoring system shall be completed in accordance with the plan.

103.2(4) Hydrologic monitoring system operating requirements.

a. Operational sampling requirements. All sampling shall be conducted in accordance with an approved sampling protocol, components of which are described in rule 110.8(455B).

b. Groundwater levels. The elevation of water in each monitoring well shall be measured monthly and recorded to the nearest 0.01 foot. Level measurements must be made before a well is evacuated for sample collection.

c. Surface water levels. The water level or flow rate of each surface water body sampled shall be measured and recorded at the time of sample collection.

d. First-year water sampling. During the first year of operation of the hydrologic monitoring system, samples shall be collected quarterly from each groundwater monitoring well and surface water monitoring point. The purpose of this sample is to determine baseline water quality information and enable initial estimation of water quality variability. Samples shall be analyzed for the following parameters in addition to the parameters listed in paragraph "e" of this section, plus any additional parameter deemed necessary by the department.

1. Arsenic, dissolved.
2. Barium, dissolved.
3. Cadmium, dissolved.
4. Chromium, total dissolved.
5. Lead, dissolved.
6. Mercury, dissolved.
7. Magnesium, dissolved.
8. Zinc, dissolved.
9. Copper, dissolved.

acres above 50 acres for sites larger than 50 acres. Fewer borings may be needed for existing sites, depending on previous work done at the site. Also, no borings will be required in existing fill areas. The department may require additional borings based on the geological complexity of the site.

b. Depth of borings. All borings must extend a minimum of 25 feet deep and at least 10 feet deep below the water table. However, borings in proposed fill areas shall be terminated 10 feet above the uppermost aquifer. At least half the borings located outside the existing or proposed fill area shall extend a minimum of 10 feet into the uppermost aquifer, 50 feet below the water table, or 10 feet into bedrock. At least one boring shall go 10 feet into bedrock. or 100 feet below the surface, minimum.

c. Boring method. Borings shall comply with the applicable portions of subrule 567--110.1(3). The preferred boring method is hollow stem auger, although it may be necessary to use other methods at greater depths and in bedrock.

110.3(2) Soil samples. Undisturbed samples shall be collected at five-foot intervals plus at every change in stratum. When collecting undisturbed samples, the standard penetration test should be conducted in accordance with American Standard Testing Methods (ASTM) Standard D1586. This test simply counts the blows of a 140-pound hammer falling 30 inches on the sampler per foot penetration of the sampler. Samples should be clearly marked, preserved, and maintained for future inspection. Samples selected for laboratory analysis shall be conducted to: correlate strata between soil borings, obtain permeability data on each strata, and design monitoring wells.

a. Permeability tests. Permeability tests using a constant-head or falling-head permeameter shall be run on at least three samples of each boring representing different areas of the state. If analytical results for each stratum are not within the same order of magnitude, at least three additional samples shall be tested.

b. Particle size analysis. Particle size analysis should be conducted on at least three samples of each distinct stratum, if possible. Analyses should be conducted in accordance with ASTM standards D4220 and D1140. If results from each stratum are not consistent, additional samples shall be analyzed to enable correlation of strata between borings.

567--110.4(455B) Hydrogeologic investigation.

110.4(1) Groundwater level measurements. The elevation of the water table shall be determined at or near the location of each soil boring which penetrates the water table. The water table may be determined using a completed water table monitoring well, piezometer, or even an open bore hole. The bottom of a piezometer or open bore hole used to measure water table elevation shall be no more than five feet below the water table.

The apparent horizontal groundwater flow direction should be determined based on water table measurements. Vertical groundwater flow shall then be assessed in at least two profiles approximately parallel to the apparent horizontal flow direction. Vertical groundwater flow shall be assessed using at least two well clusters per profile. Each well cluster shall contain a water table monitoring well or piezometer and additional water level monitoring points based on site conditions as follows:

a. If the water table is in the uppermost aquifer, one additional water level monitoring point is to be located near the base of the aquifer or at least 20 feet below the base of the water table monitoring point. This additional monitoring point may not be required if the aquifer is less than 20 feet thick.

expected seasonal fluctuations of the water table. Screen length for piezometers should be two feet or less.

Multiple screened single-cased wells are prohibited.

110.11(4) Filter pack.

a. To prevent other materials from coming in contact with the well screen, extend the filter pack at least 18 inches above and at least 12 inches below the well screen.

b. Size must be based on sieve analysis of sand and gravel formation. The filter pack material must be 2.5 to 3 times larger than 50 percent grain size of the zone being monitored.

110.11(5) Grouting.

a. The annual space above the screened section must be sealed with expanding cement or bentonite grout. The vertical dimension of this seal must be a minimum of three feet.

b. The annular space between the seal and to just below the frostline must be backfilled with an impervious material such as bentonite or expanding cement.

c. The remaining annular space must be grouted with expanding cement to the ground surface.

d. Grouting materials must be installed from the top of the filter pack up in one continuous operation with a tremie tube.

110.11(6) Well protection.

a. Plastic cased wells. A protective metal casing must be installed around the well casing. The inside diameter of the protective metal casing should be at least two inches larger than the outside diameter of the well casing. Extend the protective metal casing from a minimum of one foot below the frostline to slightly above the well casing top. The protective casing should be shortened or omitted if it covers part of the well screen. Seal or immobilize the protective casing with a concrete plug around the outside. The bottom of the concrete plug must extend at least one foot below the frostline. The concrete plug should be shortened if it covers part of the well screen. Extend the top of the plug approximately three to six inches above the ground surface and slope it away from the well approximately three feet. Soil may be placed above the plug. Seal the inside of the protective casing with a bentonite slurry. Place a vented cap on the well casing and a protective locking cap on the metal casing. The lockable cap must be kept locked when the well is not in use.

b. Metal cased wells. Extend the concrete plug from at least one foot below the frostline to approximately three to six inches above the ground surface and slope it away from the well approximately three feet. Soil may be placed on top of the concrete plug. Place a vented, locking cap on the casing. The lockable cap must be kept locked when the well is not in use. See Figure 1.

c. To protect against accidental damage, a ring of brightly colored posts or other protective devices must be installed around all wells.

110.11(7) Well drilling.

a. The owner or operator must ensure that in all phases of drilling, well installation and completion, the methods and materials used do not introduce substances that may alter the results of water quality analyses.

b. Well drilling equipment coming into contact with contaminants in the bore hole or above ground must be thoroughly cleaned to avoid spreading contamination to other depths or locations. Contaminated materials or leachate from wells must not be discharged onto the ground surface or into

RECOMMENDED ACTION: Change that part of the last sentence to read as follows: "The level of water in a well in an unconfined aquifer is..."

10. (1)(2) COMMENTS: Re: "Water Table" (def) The differentiation between water table and upper most aquifer is confusing, noting that the water table is defined as part of the aquifer. The definition is considered incorrect with regard to the observation of water level because of the existence of vertical gradients in an unconfined aquifer. A suggested definition is "the surface between the vadose zone (unsaturated zone) and the ground water, that surface of a body of unconfined ground water at which the pressure is equal to that of the atmosphere."

RESPONSE: The definition as proposed is confusing. We feel that the deletion of the second sentence in its entirety will clarify.

RECOMMENDED ACTION: Change by deleting the second sentence.

11. (2)(3)(7) COMMENTS: Re: Chapter 103 (in total) Replace monitoring program as proposed with one structured around the following concepts. First, require quarterly monitoring of general water quality parameters and evaluate for statistically significant increases above background levels. Second, if such an increase is observed, continue quarterly monitoring, but for an expanded list of parameters at those specific wells where the increase occurred. While at this response echelon, determine the source and extent of contamination. Third, if the landfill is the source, perform risk assessment to determine reasonable probability of adverse human health and environmental effects. And fourth, if supported by risk assessment, corrective action. It is suggested that "monofills" be subject to less restrictive requirements than those proposed, as their physical and chemical nature is more uniform and in many instances very stable.

RESPONSE: The proposed rules do require quarterly monitoring for general water quality parameters. As proposed, the rules also allow for increased sampling and monitoring if judged necessary based on quarterly sampling results, but not necessarily involving all parameters of a standard expanded list. This addresses the first and second point.

The third and fourth points are not consistent with the statement of policy set out in the Ground Water Protection Bill, which requires prevention of contamination of the ground water from any source to the maximum extent practical. Risk assessment evaluates present uses of ground water and determines an acceptable level of contamination permissible relative to those uses without regard to potential future use.

Specific monitoring requirements for monofills may be proposed under subsequent rules.

RECOMMENDED ACTION: No change.

12. (1)(2)(7)(12) COMMENTS: Re: Section 103.2(1)1 (as amended) It is noted that the .004 ft/day/ft^2 downward leakage rate does not take into account time of travel and also that it now applies only to landfills

half the borings located outside the fill area must meet the minimum or the maximum of the three conditions specified.

RESPONSE: The stated number and depth of borings are minimums only, if more are needed to adequately describe the site stratigraphy/hydrology they can be done. The number and depths are in line with other states' approaches.

RECOMMENDED ACTION: No Change.

23. (1)(2)(3) COMMENTS: Re: Section 110.3(2) (as proposed) A split spoon cannot be used for collection of an undisturbed soil sample. A Shelby tube cannot be used in a standard penetration test. It is suggested that neither device may be effective under certain geologic conditions and should be required only when the material is retrievable.

RESPONSE: The objective is to obtain an undisturbed sample.

RECOMMENDED ACTION: Delete "with a split spoon or Shelby tube sampler" from the referenced section.

24. (1) COMMENTS: Re: Section 110.3(3)a (as proposed) The second sentence after the heading should apparently end with the word "site" in lieu of "state".

RESPONSE: The comment is correct.

RECOMMENDED ACTION: Change the reference to site.

25. (1) COMMENTS: Re: Section 110.4(1) (as proposed) Open bore holes should not be allowed for determining the water table level, as it can not be assured that the bottom of the well is not more than five foot below the water table prior to installing the finished well or piezometer. It is felt that 24 hours is insufficient to insure that stabilization has occurred. It is suggested that several weeks or months may be necessary.

RESPONSE: The rule clearly requires that the water table elevation be determined. The reference to 24 hours is a minimum duration.

RECOMMENDED ACTION: No change.

26. (1)(2)(3)(4) COMMENTS: Re: Section 110.4(2) (as proposed) It is not clear if in-situ permeability and pump tests are to be required for cluster wells only or all monitoring wells. In high yield situations using small diameter wells the screen, gravel pack, and possibly the pump may be limiting factors. As such the test pumping rate should also be recorded. It is suggested that in low permeability soils pumping tests are not practical, with slug and bail test being a practical alternative to determine transmissivity in lieu of in-situ permeability. It is cautioned that the failure of pump tests to produce usable results is not an absolute indicator that ground water is absent or not moving. It is also noted that piezometers are not intended for use as sampling points or for permeability tests. It is also suggested that slug testing at a

Chairman Schlutz requested a vote on the motion by Richard Timmerman to withdraw the rules. Motion carried unanimously.

REFERRALS TO THE ATTORNEY GENERAL

James Combs, Division Administrator, Coordination and Information Division, presented the following item.

The Director requests referral of the following to the Attorney General for appropriate legal action. Litigation reports have been provided to the Commissioners and are confidential pursuant to Iowa Code section 22.7(4).

J. R. Nylen (Sergeant Bluff) - solid waste
Wilton Steel Processing (Wilton) - wastewater/hazardous condition
Don Caraway (Linn County - floodplain
City of Lynnville - penalty collection/wastewater
City of Mechanicsville - wastewater

Wilton Steel Processing - Wilton

Mark Landa presented the Commission with a detailed history of the case.

APPOINTMENT -- JIM STUDEMAN, WILTON STEEL

Jim Studeman, Wilton Steel, addressed the Commission stating that their clarifier plugged up and discharged some treated solids into the system. After that happened, the city shut down the trickling filter which is no longer in operation. He added that his operator made a mistake and did not shut it down when some solids were discharging over the clarifier. Mr. Studeman stated that, as for the second incident, they were within the pH parameters. It was actually the solids that caused the problem. He added that since the March, 1988 incident complete operations are shut down to clean the rinse tanks and there is no way that this could happen again.

Motion was made by Richard Timmerman for referral to the Attorney General's Office. Seconded by Nancylee Siebenmann. Motion carried unanimously.

CONTESTED CASE APPEAL: HANDI-KLASP COMPANY, INC. AND ROYAL PRODUCTS COMPANY, INC.

Mike Murphy, Legal Bureau, presented the following item.

On October 7, 1986 and February 13, 1987, the department issued and amended Administrative Order Nos. 86-SW-23, 86-AQ-15, and the department 86-WW-41 to Handi-Klasp Company, Inc. and Royal Products Company, Inc. That action assessed a $1,000 penalty and required remedial measures at a disposal site. That action was appealed and the matter proceeded to administrative hearing on October 13, November 3 and December 10 and 21, 1987. The hearing officer issued the Proposed Findings of Fact, Conclusions of Law, and Order on March 18, 1988. The decision affirmed the department's orders.

Handi-Klasp/Royal Products has appealed this order to the Commission. The Proposed Decision and pertinent documents have been distributed to the Commissioners. The entire record, including hearing tapes and exhibits, are

FY 1988 CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

CONSTRUCTION GRANTS FUNDING SUMMARY

STEP	PROJECT	ESTIMATED EPA GRANT ASSISTANCE *** FY 1988	FY 1989
3	Des Moines ICA (segmented)	16,281,970	9,325,500
3	Iowa City		4,599,980
4	Algona	1,088,390	
4	Chelsea */**		528,720
4	Randall *	378,340	
4	[illegible] *	371,080	
4	Parnell *	206,120	
4	St Olaf */**	175,490	
4	Harvey */**		336,870
4	Linnville *	782,150	
4	Dakota City **	222,430	
4	Glidden **	387,800	
4	Ricketts **	124,080	
4	Cumming */**		145,780
4	St Marys */**		295,600
4	Panama */**	242,880	
	FISCAL YEAR FUNDING ESTIMATES	$20,351,670	$15,228,490

FUNDING FOR PROJECTS IN THE AMOUNTS SHOWN IS BASED ON A FY 1989 ALLOTMENT OF $4[illegible],542,900 TO IOWA. VARIATION OF ACTUAL ALLOTMENTS FROM THIS ASSUMPTION MAY REQUIRE A REVISION OF THE LIST.

PROJECT STEP KEY

3 Construction

4 Combination grant for design and construction. Available only when the grant amount is less than $3 million, the project has not been segmented, and the population is under 25,000.

* Unsewered community
** Small community-alternative technology
*** Grant amount shown is the basic 55% (or 75%) grant. A project may also qualify for innovative bonus funding.

FISCAL YEAR 1988

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (59) / Priority Points (60)	Applicant Legal Name / County Name / Street Address / City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (92) / Auth/Fac. No. (32)	Grant Number Parent Project (82)	Project Number (02, 01, 54) 08 - 0	Step (47) / Type (04)	St Cert (45)	Proj Desc (20)	Bal Comm (30)	Innov Elig Cost (77) / Altern Elig Cost (78)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (70-76)	Ref Reg
0005 650.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	[illegible]	C190089 10	C190089 54 Amend 1	3	P 880630	T Segments 3C, 6, 7			21,709,300	16,281,970	I 21,709,300	AF
0010 650.24	City of Ankeny Polk County 211 SW Walnut Ankeny IA 50021	[illegible]	C190089 10	C190790 08	3 C	P 881231	T Phase 2			2,290,000	1,717,500	I 2,290,000	AF
0020 650.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	[illegible]	C190089 10	C190089 55	3 C	P 861231	T Segments 5,6A			10,144,000	7,608,000	I 10,144,000	AF
0070 300.44	City of Iowa City Johnson County 410 E. Washington Iowa City IA 52240	[illegible]	C190830 01	C190830 05	3 C	P 881231	I			8,363,600	4,599,980	IVB 8,363,600	AF
0085 220.44	City of Algona Kossuth County 112-4 N Call Street Algona IA 50511	[illegible]	C190779 01	C190779 02	4 C	P 880930	T			1,978,900	1,088,390	I 1,978,900	AF
0420 13.38	City of Chelsea Tama County City Hall Chelsea IA 52215	[illegible] 1900?45001		C190039 01	4 B	P 880331	T Coll	B	504,800	961,300	528,710	I 287,800 IVA 673,500	[illegible]

FISCAL YEAR 1988

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (50) / Priority Points (60)	Applicant Legal Name / County Name / Street Address / City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (22) / Auth/Fac. No. (32)	Grant Number Parent Project (82)	Project Number (08, 09, 54) 00 - 0	Step (07) / Type (04)	St Cert (25)	Proj Desc (20)	Dal Comm (33)	Innov Elig Cost (77) / Altern Elig Cost (78)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (90-96)	Daf Stg
0090 050.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLE	C190309 10	C190309 61	3 C		I Westside			3,380,000	2,535,000	IVB 3,380,000	AT
0100 050.24	City of Ankeny Polk County 211 SW Walnut Ankeny IA 50021	IA7705001 MULTIPLE	C190309 10	C190790 09	3 C		I Northwest			2,410,000	1,807,500	IVB 2,410,000	AT
0110 050.24	City of Ankeny Polk County 211 SW Walnut Ankeny IA 50021	IA7705001 MULTIPLE	C190309 10	C190790 10	3 C		T Phase 3			3,160,000	2,370,000	I 3,160,000	AT
0120 050.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLE	C190309 10	C190309 62	3 C		I, IB Beaver Creek			3,520,000	2,640,000	IVB 3,520,000	AT
0130 050.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLE	C190309 10	C190309 63	3 C		I Saylor Creek Phase 2			4,820,000	3,615,000	IVB 4,820,000	AT
0140 050.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLE	C190309 10	C190309 64	3 C		I Pleasant Hill			2,620,000	1,965,000	IVB 2,620,000	AT

Motion was made by Catherine Dunn to approve for public hearing the FY89 Construction Grants Priority List as presented. Seconded by Donna Hammitt. Motion carried unanimously.

FINE PARTICULATE (PM10) AIR QUALITY STATE IMPLEMENTATION PLAN (SIP)

Allan Stokes, Division Administrator, Environmental Protection Division, presented the following item.

EPA promulgated new air quality standards for particulate matter on July 1, 1987. As a result, the state must prepare and submit a new State Implementation Plan (SIP).

The new standards apply only to the finer airborne particulates, those with a diameter of less than approximately 10 microns, instead of the approximately 100 micron size addressed in the previous standards. Despite this, EPA is allowing states to use major portions of their existing SIPs unless they are clearly inadequate.

To take advantage of the work already put into the existing SIPs to control particulates, the state must agree to:

- make certain changes in its existing rules,
- monitor for exceedances of the new standard,
- notify EPA if any exceedances occur,
- make whatever SIP revisions are necessary if any violations occur, and
- prepare the documentation that future violations are not likely (if violations are not detected in three years of monitoring).

Because the state is agreeing to perform future activities, EPA is calling this a "committal SIP."

Alternatively, the state may choose to start fresh and develop an entirely new SIP for fine particulates.

The staff hopes to use the "committal SIP" option to minimize disruption by building on the existing program. As a result, the staff intends to bring the attached draft rules and "committal SIP" to the Commission at next month's meeting to request approval to take them to public hearing.

EPA's Region VII staff has reviewed the draft rules and "committal SIP." Their suggestions have been incorporated into these documents. Upon completion of the rulemaking cycle, the Department would submit these two items to EPA as the State of Iowa's PM10 SIP.

This was an informational item; no action was required.

Mr. Stokes distributed to each Commissioner a copy of the report entitled "Water Quality in Iowa During 1986 and 1987." Mr. Stokes described the report in detail. He stated that EPA will combine the reports of all 50 states and then compile one report for submission to Congress.

This was an informational item; no action was required.

AIR QUALITY STATUS REPORT ON NONATTAINMENT AREAS

Allan Stokes, Division Administrator, Environmental Protection Division, presented the following item.

Staff will brief the Commission on the status of the particulate primary and secondary nonattainment areas. Staff will also review with the Commission monitored violations of the Sulfur Ambient Air Quality Standards.

Discussion took place on this subject under an earlier item.

Mr. Stokes stated that there is a situation that the Commission should be aware of, as it may come before them in the future. It has to do with monitored violations of the ambient air quality standards for sulphur dioxide in the Clinton area. Between April, 1985 and March, 1988, the department has monitored exceedances of the primary air quality standard for sulphur dioxide in that area. In November of 1986 and April of 1987, monitoring levels exceeded the alert level. Staff is rechecking data and information and is in the process of doing air modeling. The source of some of the problems has been identified and discussion is taking place with the facility.

SPRING WATER QUALITY STATUS

Allan Stokes, Division Administrator, Environmental Protection Division, presented the following item.

River water monitoring data for nitrate and trichloroethene (TCE) will be presented for the Des Moines and Raccoon Rivers at Des Moines and nitrate data for the Iowa River at Iowa City and Chariton River downstream of Rathbun Reservoir. Treated drinking water data will be presented where applicable.

Mr. Stokes displayed charts showing nitrate levels in the Iowa River at the University of Iowa water treatment plant, Des Moines River, and the Chariton River. Discussion took place regarding the peaks and valleys shown on the charts. He also displayed a chart showing the Des Moines stripper effluent quality which now lists TCE at a "0" level.

COMMITTEE APPOINTMENTS

Chairman Schlutz appointed Richard Timmerman to chair a committee to study rules for sanitary landfill monitoring. Clark Yeager will serve on the committee along with one representative of the public, one rural county supervisor, a representative of EPA, a county engineer, one representative from ISU, a private engineer, and a representative of a solid waste association.

Chairman Schlu' appointed the same representatives as last year to serve on the legislati Committee those being Keith Uhl as Chairman, Charlotte Mohr and Ric rd mmerman.

ADDRESS ITEMS FOR NEXT MEETING

Report on rulemaking regarding bonding half of sewer construction grants.

Report on micro-genetic engineering of seed corn and its effect on air quality.

NEXT MEETING DATES

June 20-21, 1988
July 18-19, 1988
August 15-16, 1988

ADJOURNMENT

With no further business to come before the Environmental Protection Commission, Chairman Schlutz adjourned the meeting at 3:25 p.m., Tuesday, May 17, 1988.

Larry J. Wilson, Director

Charlotte Mohr

Charlotte Mohr, Secretary

(5-88.MIN/sc)

to facilitate communications with the Governor's office, using the PROFS system.

It is the intent of the Environmental Protection Division to make personal computers readily available to all of EPD's staff. With the UST computer procurement item, each regional office will have three personal computers. These personal computers are also hooked directly to the State's mainframe. Ultimately, most professional staff in EPD will have either a personal computer or a terminal, depending on their needs.

The DNR is currently in the process of equipping all of the bureau chiefs with either a terminal or a personal computer that emulates a terminal so they can have access to PROFS. The next step will be equipping other major field units with personal computers, both for local use and for communications.

All purchases of computers and software have to be approved through the State's Centralized Purchasing Division and the State's Information Services Division (Central Data Processing). This involves a committee approach that evaluates the proposed equipment and considers the purchase within the context of the overall State approach to automation. In addition, all computer equipment funded with federal funds must specifically be approved by the relevant federal agency.

The procurement of computers will be a significant component of the forthcoming FY89 operating budget and the FY90 request. The DNR staff is currently updating and formalizing computer procurement plans as part of the budget process and intends to provide a comprehensive overview of this area to the commissions as part of the budget approval process.

Stan Kuhn

ATTACHMENT A

WASTE MANAGEMENT AUTHORITY DIVISION
IOWA DEPARTMENT OF NATURAL RESOURCES

ORGANIZATION CHART

Division Administrator

Ruth Larson Bender
Teresa Hay (after 6/1/88)
515/281-8975

Planning Unit

Connie Cousins-Leatherman
Lead Worker/Env. Spec. III
515/281-8489

Scott Cahail
Program Planner I
515/281-8263

1 Environmental Specialist I
Vacant
2 Program Planner I's
Vacant

Program and Grants Unit

Stuart Schmitz
Lead Worker/Env. Spec. III
515/281-8499

Bob Meddaugh
Program Planner I
515/281-8176

1 Environmental Specialist I
Vacant
2 Program Planner I's
Vacant

REPORTS OF HAZARDOUS CONDITIONS

During the period of April 1, 1988 through April 30, 1988, reports of 130 hazardous conditions were forwarded to the Central Office. Two incidents are highlighted, followed by a general summary and the number per field office.

Date Reported and County	Description: Material, Amount, Date of Incident, Cause, Location, Impact	Responsible Party	Response and Corrective Actions
4/04/88 **PLYMOUTH**	An above-gr und storage tank on Highway 75 north of Hinton, Iowa was filled with 8,000 gallons of gasoline on April 1, 1988, but when an attempt was made to pump product from the tank on April 4, no gasoline was left. The product reached groundwater at a depth of 20 feet.	Plymouth Coop 1st Avenue and 1st Street, LeMars, Iowa 51031	Trenches were dug to locate the product and excavate contaminated soil. A contractor was retained by the responsible party to assess the extent of contamination.
4/04/88 **KOSSUTH**	A bung failed on a storage tank on South Phillips Street in Algona, Iowa on April 4, 1988, and about 10,100 gallons of 28% urea ammonium nitrate fertilizer were spilled. Approximately 500 gallons were contained within a berm. The rest of the material flowed to the street and went down the storm sewer.	Cargill Box 8129, Des Moines, Iowa 50301	A manhole was located near the Highway 169 bridge on the north side of Algona. About 7,900 gallons of material were recovered at that point. The sewer was flushed and rinse water was collected for application on land.

RK-s1126.M01

Administrative Penalties Due (Continued)

NAME/LOCATION	AMOUNT	DUE DATE
White Consolidated Industries (Webster City)	500	4-30-88
**Pleasant Creek Estates (Shellsburg)	200	4-30-88
Lake Hendricks Park (Howard Co.)	50	5-09-88
DeWitt Moose Lodge (DeWitt)	560	5-16-88
Vernon Heights MHP (Cedar Rapids)	1,000	5-09-88
Fred Iben (Monticello)	100	5-20-88
63-[illegible]0 Truckstop (Poweshiek Co.)	1,000	5-21-88
City of Orchard	580	5-15-88
Linn Hollow MHP (Washington)	75	6-01-88
*Chico's Supper Club (Burr Oak)	954	6-10-88
Clear View Acres Store (Delhi)	230	-------
Hills School (Iowa City)	100	6-18-88
Beaver Hills Country Club (Cedar Falls)	75	6-18-88
Mike's Prairie Home (Ollie)	100	6-16-88
Braddyville, City of	100	6-16-88

The following administrative penalties have been appealed:

NAME/LOCATION	AMOUNT
Handi-Klasp, Inc. (Webster City)	1,000
Iowa City Regency MHP	1,000
Bianchi Meyrat Lagoon (Des Moines)	600
Thomas E. Lennon (Barnum)	700
Great Rivers Coop (Atavia)	1,000
City of Wapello	500
Wilfred McFee (Union Co.)	500
Richard Davis/1st Iowa State Bank (Albia)	1,000
Gradert, Ernest and Kevin (Sibley)	500
Stan Moser (Hudson)	250
City of University Park	500
South Central Iowa Landfill Agency	1,000
Cloyd Foland (Decatur)	800
Lynn Mennenga Feedlot (Wright Co.)	600
Motel Grinnell	1,000
Land O' Lakes, Inc. (Ellsworth)	1,000
Harry Brocka (Dumont)	800

*Referred to the Attorney General
**On Payment Schedule

"Down gradient well" means a well which has been installed down gradient of the site and is capable of detecting the migration of contaminants from the site.

"Geologic cross section" means a drawing of a subsurface profile showing the various strata encountered based on at least three soil borings.

"Groundwater flow path" means the route of water (and contaminant) travel within the groundwater system.

"Hydraulic head" means the energy contained at a point in the groundwater system. Hydraulic head is measured as the elevation to which water rises in a piezometer.

"Landfill property" means the entire area of the landfill including the disposal site and any other contiguous property proposed for actual landfill use.

"Leachate" means a liquid that has percolated through or drained from a solid waste landfill.

"Mean" is the sum of all the measurements divided by the number of measurements.

"Perched saturated zone" is a localized saturated zone occurring above the regional zone of saturation. The perched saturated zone's presence is caused by a lens of relatively impermeable material within the unsaturated zone that impedes the downward movement of water toward the zone of saturation.

"Piezometers" are devices used to measure hydraulic head at a specific point in the groundwater system. Piezometers are generally small diameter wells sealed along the entire length and open to water only at the bottom through a short section of well screen, which is the point where hydraulic head is measured. A piezometer may be constructed similar to a monitoring well or may be a driven well point.

"Potentiometric surface" is the imaginary surface that represents the level to which water from a confined aquifer will rise in wells.

"Site" means any location, place or tract of and used for collection, storage, conversion, utilization, incineration or landfilling of solid waste, to include the landfill area, nonfill work areas, borrow areas plus a 100-foot-wide perimeter surrounding the working areas or the property line if it is closer than 100 feet to the working areas.

"Soil boring" means a hole placed into the subsurface for the purpose of determining subsurface characteristics.

"Specific yield" is the ratio of the volume of water that a given mass of saturated rock or soil will yield by gravity to the volume of that mass. This ratio is stated as a percentage.

"Standard deviation" means the square root of the variance.

"Storage coefficient" is the volume of water an aquifer releases from or takes into storage per unit surface area of aquifer per unit change in head.

"Transmissivity" is the rate at which water is transmitted through a unit width of an aquifer under a unit hydraulic gradient.

"Tremie tube" means a pipe used to fill the annular space in a well from the bottom up.

"Unconfined aquifer" means an aquifer which does not have a confining bed above it. The level of water in a well in an unconfined aquifer is below the top of the aquifer formation.

Unsaturated zone" is the subsurface zone above the water table in which the interstitial spaces are only partially filled with water.

"Upgradient" means direction of increasing hydraulic head.

"Upgradient well" means a well which is capable of yielding groundwater samples that are representative of regional conditions and are not affected by

d. If the department determines that no waste or waste constituents from the facility have entered the ground water, the owner or operator shall reinstate the routine monitoring program.

If the department determines that waste or waste constituents have been released from the facility and have entered the groundwater, the owner or operator shall continue to make the determinations described by the assessment plan and develop a remedial action/mitigation plan to alleviate or reduce contamination to the fullest extent possible.

103.2(10) Postclosure monitoring requirements.

a. At least six months prior to closing the site, the owner or operator of a sanitary landfill shall submit a plan to the department for approval detailing a 30-year postclosure monitoring program.

b. The department will review the facility's post-closure monitoring records at five-year intervals to determine if changes in the monitoring frequencies or parameters are required.

c. The commission may adopt rules on a site-specific basis identifying additional monitoring requirements for sanitary landfills for which the postclosure monitoring period is to be extended.

ITEM 5. Amend rule 103.3(455B) by deleting subrule 103.3(1) in its entirety and renumber remaining subrules accordingly.

ITEM 6. Amend rule 103.4(455B) by deleting subrule 103.4(1) in its entirety and renumber remaining subrules accordingly.

ITEM 7. Amend rule 103.5(455B) by deleting subrule 103.5(1) in its entirety and renumber remaining subrules accordingly.

ITEM 8. Add the following part of new Chapter 110, "Design, Construction and Operation Standards for Solid Waste Management Facilities."

Chapter 110

Design, Construction and Operation Standards For Solid Waste Management Facilities

567--110.1(455B) This chapter pertains to the hydrologic monitoring system standards for solid waste disposal facilities.

567--110.2(455B) Hydrologic monitoring system planning requirements.

110.2(1) All plans, specifications and other documentation required herein must be developed by an engineer registered in Iowa.

110.2(2) All sanitary disposal projects shall conduct a soil and hydrogeologic investigation which conforms to the requirements of this chapter. The purpose of soil and hydrogeologic investigation is to obtain data which will enable a determination of potential routes of contaminant migration from a site via groundwater. The following items are minimum requirements for such investigations. Additional work and use of other methods (e.g., geophysical techniques) are encouraged.

567--110.3(455B) Soil investigation.

110.3(1) Soil borings.

a. Number of borings. A sufficient number of soil borings shall be made to accurately identify the hydrogeologic variations of the site. For new sites, the minimum number of borings required is 10 for sites of 10 acres or less, 20 for sites of 10 to 50 acres, and 20 plus an additional boring for every 10 acres above 50 acres for sites larger than 50 acres. Fewer borings may be needed for existing sites, depending on previous work done at the site. Also, no borings will be required in existing fill areas. The department may require additional borings based on the geological complexity of the site.

monitoring wells do not intercept most vertical flow paths from the site. In such situations, monitoring wells shall be placed at the appropriate depths to intercept the remaining flow paths and shall be spaced at no more than 600 feet apart.

110.10(5) Upgradient monitoring wells. Upgradient monitoring wells shall not be affected by the site. At least one upgradient monitoring well shall be installed into each stratum being monitored by downgradient monitoring wells. If it is not possible to actually locate a monitoring well upgradient of the site, the well should be placed as near the site as feasible without being affected by the site.

110.10(6) Monitoring point identification system. The various types of monitoring points should be identified as follows:

Monitoring well	MW#___
Surface Water Monitoring Point	SW#___
Piezometer	PZ#___

Each monitoring point must have a unique number, regardless of the type of monitoring point, and that number must never change.

567--110.11(455B) Monitoring well/soil boring construction standards.

110.11(1) General considerations.

a. Contractors involved in construction of monitoring wells and piezometers and soil boring activities shall be registered with the department as required in 567--Chapter 37, Iowa Administrative Code.

b. To the extent possible, all monitoring well construction materials must not absorb, desorb, react or otherwise alter the quality of the groundwater being sampled. Galvanized metal, glues, welding solvents, pipe thread lubricants and other foreign substances must not be used.

c. All monitoring well construction materials must be protected from contamination prior to installation.

d. A typical cross section of a properly constructed monitoring well is shown in Figure 1.

110.11(2) Casings.

a. As a minimum, the diameter of the inner casing (see Figure 1) of a monitoring well must be at least two inches

b. Plastic cased wells must be constructed of materials with threaded, nonglued joints which do not allow water infiltration under natural subsurface pressure conditions or when the well is evacuated for sampling.

c. Well casings must provide structural stability to prevent casing collapse during installation as well as drill hole integrity when installed.

d. Well casings must be constructed of inert materials such as polytetrafluorethylene, stainless steel or polyvinyl chloride. The department may approve other casing materials if the owner or operator can demonstrate the material has a low potential for biasing the water quality parameters of samples. The department may approve the construction of composite well casings (casings with less inert materials in the unsaturated zone).

110.11(3) Well Screens.

a. Slot size will be based on sieve analysis of the sand and gravel formations or filter pack. The slot size must hold out 35 percent to 60 percent of the formation material and not less than 90 percent of the filter pack.

b. Slot configuration and open area must permit effective development of the well.

c. Screen length. Maximum screen length shall be 10 feet except for water table wells in which the screen must be of sufficient length to accommodate

Responsiveness Summary

1	Larry Crane, P.E. Cindy Turkle Gary Stroud	7	John Bellizzi, P.E.
		8	Ron Mace
		9	John Kemp
2	Edward Repa, PhD	10	Charles Smadeke
3	E.J. (Rick) Yoetger, P.E.	11	Mike Lustig
4	Burton Kross, PhD	12	Dave Bair
5	Michael McGuire	13	Jim Uiveling
6	Eldo W. Schornhorst, P.E.	14	Harold Rowley

1. (2) **COMMENT:** Re: "Aquifer" (def) The definition as proposed protects very low yield "aquifers" which may have little or no potential to be developed as a water supply source. A lower limit of yield of 1 gpm, varying by exception downward to 0.2 gpm, is suggested.

RESPONSE: Protecting only ground water capable of being developed as a water supply is contrary to the statement of policy set out in the Ground Water Protection Bill, which requires prevention of "further contamination of ground water from any source to the maximum extent practical."

RECOMMENDED ACTION: No change.

2. (2) **COMMENT:** Re: "Down-gradient" (def) The definition is incorrect and should refer to "direction of decreasing hydraulic head", rather than "direction of ground water flow".

RESPONSE: The definition as proposed was intended to be more easily understood by landfill officials not having a technical background. The suggested definition is more technically precise.

RECOMMENDED ACTION: Change rule to read: "Down-gradient" means direction of decreasing hydraulic head.

3. (2) **COMMENT:** Re: "Down-gradient well" (def) The words "in the upper most aquifer" should be added to the definition.

RESPONSE: This appears to be a redundancy. The definition as proposed requires that the well be capable of detecting the migration of contaminants from the site irrespective of whether they are being diffused through the water table or transported by ground water in the aquifer.

RECOMMENDED ACTION: No change.

chloride be eliminated because PVC well construction is permitted (per Crane et al). It is suggested that TOC and TOX not be used as indicators as they are very generalized parameters having a wide range of laboratory precision and therefore will not result in reliable statistical analysis (per Repa). The use of a "standard suite" or 28 VOC's may be a more informative and economical alternative than selected organics analysis. Also an annual analysis of leachate for a "standard suite" should be required as a means of identifying and modifying indicator parameters.

RESPONSE: Routine quarterly monitoring is intended to begin in the first year. The objective is to monitor changes in the seven listed quarterly monitoring parameters, and if justified at any future point, require repeat analysis of some or all of the listed first year parameters for comparison with initial levels. We favor the comment by Repa with regard to TOC, however the use of an expanded list of organic compounds on an on-going monitoring basis may not be justified until other parameters indicate more probable evidence of leachate movement. The necessity of each parameter has been reassessed. The use of a tiered monitoring concept is intended to keep costs reasonable. Appropriate PVC well construction will minimize interference in listed organic compound analysis, with the possible exception of vinyl chloride.

RECOMMENDED ACTION: Change section 103.2(4)d by inserting the phrase in the third sentence as follows: "Samples shall be analyzed for the following parameters <u>in addition to the parameters listed in subsection e of this section</u>, plus any additional...". Also under this section delete the parameters enumerated as: 5,9,12 through 20 inclusive, and 28. Change section 103.2(4)f by correcting the omission of the word "be" between the words "must analyzed", also delete "1. Total organic carbon".

16. (3) **COMMENTS:** Re: Section 103.2(4)b & c (as amended) Will monthly monitoring of wells for water level be required for the first year, the active life, or through post-closure? Surface water sampling from major streams, especially during periods of high flow and subsequently high dilution, will not be very informative.

RESPONSE: Monthly monitoring of water levels will be required through post-closure. An argument can be made that leachate releases from landfills may be significantly increased with the occurrence of precipitation. The appropriateness of any sampling point must be addressed on a site specific basis in the monitoring system plan.

RECOMMENDATION: No change.

17. (1)(2)(3)(4) **COMMENTS:** Re: Section 103.2(6) (as amended) Appendix A was not distributed with the rules. Does the standard deviation calculation apply only to the upgradient wells for both the first year data collection and routine quarterly monitoring? Why not use data

intended that an evaluation be performed every two years. It is felt that in-situ permeability testing every five years is excessive. It is felt that the requirements of section 110.4(2) do not specifically call for in-situ permeability at all wells, therefore later comparison of data at all wells is not possible.

RESPONSE: The term biannual (twice per year) is the intended usage. The assumption that in-situ permeability tests do not apply to all wells is in error. Five years is not considered to be an excessively long period for such a routine function to assure that the gravel path is not plugged.

RECOMMENDED ACTION: No change.

32. (1)(2)(3) **COMMENTS:** Re: Section 110.10(1) (as proposed) The spacing, depth, and location of monitoring wells should be based on site specific study. Why conduct site investigations if in the end a cookbook solution is acceptable under the proposed rule? It is felt that locating monitoring wells within 50 foot of the waste boundary may easily be within the back slopes. Also, wells constructed in such locations around a relatively small site are not likely to detect leachate unless it moves with a near vertical gradient. As such they would be in the way of future remedial action should it be required. Such location could itself introduce possible contamination to the aquifer if the seal should fail.

RESPONSE: A site specific study is required for all sites. The effort involved to develop the study may vary by degree depending upon the size of the site. In some instances, this degree may be sufficient to substantiate and warrant a variance from the rule.

RECOMMENDED ACTION: Add a new section as follows: 110.13 Variance from design, construction, and operation standards. Pursuant to the authority of 455B.303 of the Iowa Code, a variance from the specific requirements of Chapter 110 may be issued, modified, or denied by the Director. The request should also include any supporting information to be considered by the Director in the formulation of his decision.

33. (3)(4) **COMMENTS:** Re: Section 110.10(5) (as proposed) It was also suggested that requiring 2 upgradient wells may be a means of evaluating natural variations in ground water quality and mitigating false positive statistical findings more quickly and economically. It is noted that most private wells will not meet the construction criteria described in the rule as proposed. The utilization of such a well could cause the results of sampling parameters, which could be affected by casing material, to be disregarded.

RESPONSE: The rules as proposed are intended to establish minimum requirements. The suggestions are reasonable, but probably beyond minimum.

RECOMMENDED ACTION: No change.

Facility C

Description = 22 Tons/day
16 Acres ≈ 1200′ x 625′

Wells = 7 Water Table
+ 4 Aquifer

Surface Pts = 3

Total Sample Pts = 14

Costs

Construction (wells) = $7,500
1st YR Sampling = 15,960
Subsequent Sampling = 185,640
(39 yrs)
Total 40 YR. Cost = $209,100

5720 | 23,000 .004
- 170

5.720 | 23,000 4.00

Waste Base

22 Tons/day x 5days/wk x 10 YRS = 57,200

Cost / Ton

$3.65

STATE OF IOWA

IOWA DEPARTMENT OF NATURAL RESOURCES

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

The following list contains detailed information for fundable projects in Fiscal Year 1988. It also shows the priority rankings of all other projects which may be eligible for EPA grant funding but cannot be funded with available funds.

Pages 1 through 3 comprise the fundable list.

A summary of funds on Page 4 shows how available fund balances are proposed to be distributed.

Pages 5 through 7 list the subsequent steps or phases of projects which have been initiated with grants assistance.

Pages 8 through 10 show the relative rankings of all other projects which are not fundable.

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (59) Priority Points (H8)	Applicant Legal Name County Name Street Address City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (C2) Auth/Fac. No. (32)	Grant Number Parent Project (B2)	Project Number (02, 01, 54) 03 - 0	Step (87) Type (04)	St Cert (85)	Proj Desc (20)	Sml Comm (33)	Innov Elig Cost (Y7) Altern Elig Cost (Y8)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (Y0-Y5)	Enf Req
1055 .686	City of Dakota City Humboldt County 26 South 5th Street Dakota City IA 50529	IA4622001 190202001	C190975 01	C190975 02	4 C	P 880630	T	R	 404,400	404,400	222,420	I 404,400	AY
1065 .641	City of Glidden Carroll County 10? Idaho Street Glidden IA 51443	IA1436001 190329001	C190916 01	C190916 02	4 C	P 880630	T	R	456,100 45,500	705,100	387,800	I 607,500 IIIA 97,600	AY AY
1215 .421	City of Ricketts Crawford County Main Street Ricketts IA 51460	IA2441001 191072001	C190911 01	C190911 02	4 C	P 880630	T	R	 225,600	225,600	124,080	I 225,600	AY
1400 .162	City of Cumming Warren county City Hall Cumming IA 50061	UNSEWERED 190198001		C191273 01	4 M	P 890630	T Coll	R	 209,800	265,000	145,750	I 78,000 IVA 187,000	BY B
1410 .154	City of St Marys Warren County City Hall St Marys IA 50241	UNSEWERED 190768001		C191029 01	4 M	P 890630	T Coll	R	 277,500	537,600	295,680	I 206,700 IVA 330,900	BY B
1455 .113	City of Panama Shelby County Box 10 Main Street Panama IA 51562	UNSEWERED 190664001	C191254 01	C191254 02	4 C	P 880930	T Coll	R	 410,600	441,600	242,880	I 225,200 IVA 216,400	BY B

ADM-1-1-1
May 1988

MEETING AGENDA
ENVIRONMENTAL PROTECTION COMMISSION
WALLACE STATE OFFICE BUILDING
May 16-17, 1988

Meeting Convenes at 1:30 p.m., May 16, 1988 in the fourth floor conference room and reconvenes on May 17, 8:30 a.m.

Break	3:00 p.m.
Public Participation	3:30 p.m.

Meeting Reconvenes 8:30 a.m., May 17, 1988

Break	10:00 a.m.
Appointments:	
Jim Stuedemann, Wilton Steel	10:30 a.m.

1. Approval of Agenda.
2. Approval of Minutes of April 25-26, 1988.
3. Election of Chairperson, Vice-Chairperson, and Secretary
4. Director's Report. (Wilson) Informational.
5. Computer System Overview. (Kuhn) Informational.
6. Computer Equipment Acquisition for Underground Storage Tank Program. (Kuhn) Decision.
7. Waste Management Authority Division Status Report. (Bender) Informational.
8. Monthly Reports. (Stokes) Informational.
9. Final Rule--Chapter 100, 103, and 110, Groundwater Monitoring at Sanitary Landfills. (Stokes) Decision.
10. FY89 Construction Grants Priority List - Approval for Public Hearing. (Stokes) Decision.
11. Water Quality Report. (Stokes) Informational.
12. Air Quality Status Report on Non-Attainment Areas. (Stokes) Informational.
13. Fine Particulate State Implementation Plan. (Stokes) Informational.
14. Spring Water Quality Report. (Stokes) Informational.
15. Referrals to the Attorney General. (Combs) Decision.

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 6

DECISION

COMPUTER EQUIPMENT ACQUISITION FOR UNDERGROUND STORAGE TANK PROGRAM

The department requests approval to purchase the computer equipment listed below:

Quantity	Description	Estimated Cost
1	IBM PS-2 Mod. 80 w/115 Meg hard disk and 2 Meg Ram	$ 8,043
13	IBM PS-2 Mod. 50 w/120 Meg hard disk and 1 Meg Ram	32,708
14	IBM Monitor Mod. #8512 - 14" Color	6,174
1	Hewlett-Packard Laser Jet 2 Printer incl. 1 set fonts and output tray	1,800
5	3174 Control Units	18,500
8	Feature 69 x 8138 4790 Token Ring Network Adapter/A (Channel)	6,360
1	Feature 3828 001 Token Ring Multi-Station Unit	660
8	Feature 83 x 7873 7873 LAN Support Program	400
8	Feature 75 x 0076 PC LAN Program 3-1/2" (Version 1.3)	1,800
8	d Base III Plus	3,920
8	IBM Displaywriter 4	2,800
13	Sets Emulation Hardware 9969 and Adaptors	9,737
8	Type 3 Media Filter #6466941	280
8	Type 3 Media Jumper Cable DHI 6944	112
2	Patch Cable #8642551	70
		$ 93,364

The purpose of this system will be to enter, manage, analyze and track underground storage tank (UST) information and activities. All personal computers must use the on-line information located on the mainframe. In addition, separate tracking and compliance programs will be developed to serve the cost accounting requirements of the LUST Trust Fund, compliance tracking of 300+ leaking tank clean-up projects, compliance tracking of tank removals and replacements, enforcement actions, and UST inspections.

The PS-2 Model 80 with monitor and seven of the Model 50 with monitors and associated hardware and software will be located on the fifth floor of the Wallace State Office Building, Iowa Department of Natural Resources,

WASTE MANAGEMENT AUTHORITY DIVISION
IOWA DEPARTMENT OF NATURAL RESOURCES

MISSION AND DUTIES

Mission

To promote the proper and safe storage, treatment, and disposal of solid, hazardous and low-level radioactive waste in Iowa. In carrying out its mission, the Waste Management Authority Division will emphasize the hierarchy of waste management priorities in the following order of preference: 1) volume reduction at the source, 2) recycling and reuse, 3) combustion with energy recovery and/or treatment to make nonhazardous, 4) combustion for volume reduction, and 5) land disposal or long term storage.

Duties

Planning:

* Hazardous waste comprehensive plan
    - Feasibility report - due 4/1/88
    - Capacity Assurance requirements
    - Facility site identification and siting
* Solid waste comprehensive plan
    - Local comprehensive planning guidelines
* Midwest Interstate Low-Level Radioactive Waste Compact
* Household hazardous materials program rule development
* Small Business Assistance Center
    - Plan - due 1/15/88
    - Representative for DNR on Advisory Committee
* State agency recycling program
* Product packaging complaint mediation
* Central repository and information source

Grants and Projects:

* Local solid waste grants promoting alternatives to land disposal
* Solid waste comprehensive plan assistance and review
* Household hazardous materials program
    - Consumer information program
    - Toxic Cleanup Days and recycling/reclamation events
* Cooperative effort with DOT on used oil collection program
* Beverage container deposit program
* General public information and outreach

Numbers in Parentheses Represant Reports for the Same Period in Fiscal Year 1987

		Substance Type				Mode				
Month	Total # of Incidents	Petroleum Product	Agri. Chemical	Other Chemicals and Substances	Handling and Storage	Pipeline	Highway Incident	RR Incident	Fire	Other
Oct	69	47	4	18	53	0	9	1	2	4
Nov	48	35	3	10	37	0	4	0	1	6
Dec	46	36	3	7	39	1	2	0	0	4
Jan	54	43	4	7	45	1	5	1	1	2
Feb	51	30	2	19	37	1	9	3	1	0
Mar	67	41	10	16	49	1	11	2	0	4
Apr	130 (78)	58 (32)	50 (25)	22 (21)	85 (51)	0 (3)	36 (16)	2 (3)	2(2)	5 (3)
		UST-28		UST-1	UST-29					

Total # of Incidents Per Field Office This Period	01	02	03	04	05	06
	25	19	16	13	24	33

RK-s1126.M02

DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION COMMISSION
CONTESTED CASES
MAY, 1988

DATE RECEIVED	NAME OF CASE	ACTION APPEALED	PROGRAM	ASSIGNED TO	STATUS
10-17-85	City of Burlington	Administrative Order	WW	Hansen	Hearing rescheduled for 5-12-88.
1-23-86	Oelwein Soil Service	Administrative Order	HW	Landa	Hearing continued; cleanup study progressing.
6-12-86	ADM - Clinton	Administrative Order	Air	Landa	Hearing continued.
10-29-86	Mandi-Klamp Company, Inc.	Administrative Order	AQ/WW/SW	Landa	Appealed to Commission.
12-03-86	City of Naukee	Administrative Order	WS	Hansen	Hearing continued; settlement close.
12-11-86	Eloise Reese	Permit Condition	FP	Clark	Briefing in progress.
12-24-86	Francis Hemberlin	Administrative Order	FP	Clark	Briefing in progress.
5-12-87	Iowa City Regency MHP	Administrative Order	WW	Hansen	Hearing held 11-03-87.
5-28-87	Bianchi-Meyrat Lagoon (Hank Smith)	Administrative Order	WW	Kennedy	Settled.
6-08-87	Willow Creek Dam/Zerble et.al	Permit Issuance	FP	Clark	Negotiating before filing.
6-11-87	Thomas Lennon	Administrative Order	FP	Clark	Awaiting decision.
8-10-87	Great Rivers Co-op	Administrative Order	HC	Landa	Clean-up proceeding.
8-17-87	City of Wapello	Administrative Order	WW	Hansen	DNR met with City. 5/88 EPC
9-17-87	Gradert, Kevin and Ernest	Administrative Order	AQ	Landa	Hearing rescheduled for 5/27/88.
10-22-87	University Park	Administrative Order	WW	Hansen	Hearing rescheduled for 5/19/88.
12-07-87	Stan Moser	Administrative Order	SW	Murphy	Proposed decision 4-12-88.
12-11-87	Finlan Landfill	Permit Revocation	SW	Kennedy	Settlement negotiations.
12-15-87	Delaware Co. Conc. Cit. (IBP)	Permit Issuance	WR	Clark	Appears it will be dismissed.
12-21-87	Hardin County SLF	Administrative Order	SW	Kennedy	Settled.
12-31-87	City of Tipton	Administrative Order	WW	Hansen	Received information.
12-31-87	Wilfred McFee	Administrative Order	WW	Murphy	Negotiating before filing.

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the landfill site. Such a well is typically placed upgradient of the site, if possible, and, if not, is placed as near the site as feasible.

"Variance" means the sum of the differences between the actual measurement and the mean divided by one less than the number of measurements.

"Water table" means the water surface below the ground at which the unsaturated zone ends and the saturated zone begins.

"Zone of saturation" is the subsurface zone below the water table in which the interstitial spaces are completely filled with water.

ITEM 2. Amend subrule 103.2(1) by adding the following new paragraphs "l" and "m." Reletter existing paragraph "l" as new paragraph "n."

l. Information indicating that the portion of the landfill site to be filled is not situated in an unconsolidated sequence that will permit more than 0.004 cubic foot of liquid per day per square foot of area downward leakage into the groundwater beneath or adjacent to the proposed site.

1. The potential downward leakage shall be evaluated by means of the generalized Darcy's law $Q=P\frac{(h_2-h_1)}{L}A$ where:

Q = feet of liquid/day/square foot of area of the interface

A = one square foot of area at the base of the landfill

P = coefficient of permeability of the unconsolidated confining unit above the high water table.

h_2 = maximum final elevation of a contiguous portion of fill of the site

h_1 = lowest elevation of the top of the confining unit above the high water table

L = minimum thickness of the confining unit above the high water table

2. Should conditions in violation of this paragraph exist, the original plan must detail how the site is to be engineered to provide equal protection to the water resources.

m. The required soil and hydrogeologic design information specified in chapter 110.

ITEM 3. Amend subrule 103.2(2) by deleting paragraphs "j" and "k," and relettering the remaining paragraphs.

ITEM 4. Amend rule 103.2(455B) by adding the following subrules:

103.2(3) Hydrologic monitoring system. The owner or operator of a solid waste disposal facility shall operate and maintain a hydrologic monitoring system which includes a sufficient number of groundwater monitoring wells and surface water monitoring points to determine the impact, if any, that the sanitary disposal project is having on the adjacent waters. The hydrologic monitoring systems shall enable early detection of the escape of pollutants from a sanitary landfill.

b. Depth of borings. All borings must extend a minimum of 25 feet deep and at least 10 feet below the water table. However, borings in proposed fill areas shall be terminated 10 feet above the uppermost aquifer. At least half the borings located outside the existing or proposed fill area shall extend a minimum of 10 feet into the uppermost aquifer, 50 feet below the water table, or 10 feet into bedrock. At least one boring shall go 10 feet into bedrock, or 100 feet below the surface, maximum.

c. Boring method. Borings shall comply with the applicable portions of subrule 567--110.1(3). The preferred boring method is hollow stem auger, although it may be necessary to use other methods at greater depths and in bedrock.

110.3(2) Soil samples. Undisturbed samples shall be collected at five-foot intervals plus at every change in stratum. When collecting undisturbed samples, the standard penetration test should be conducted in accordance with American Standard Testing Methods (ASTM) Standard D1586. This test simply counts the blows of a 140-pound hammer falling 30 inches on the sampler per foot penetration of the sampler. Samples should be clearly marked, preserved, and maintained for future inspection. Samples selected for laboratory analysis shall be preserved and transported to the laboratory in accordance with ASTM Standard D4220.

110.3(3) Laboratory tests of undisturbed soil samples. Laboratory tests of undisturbed soil samples shall be conducted to: correlate strata between soil borings, obtain permeability data on each strata, and design monitoring wells.

a. Permeability tests. Permeability tests using a constant-head or falling-head permeameter shall be run on at least three samples of each distinct stratum, if possible. Each sample shall be from a different soil boring representing different areas of the state. If analytical results for each stratum are not within the same order of magnitude, at least three additional samples shall be tested.

b. Particle size analysis. Particle size analysis should be conducted on at least three samples of each distinct stratum, if possible. Analyses should be conducted in accordance with ASTM standards D4220 and D1140. If results from each stratum are not consistent, additional samples shall be analyzed to enable correlation of strata between borings.

567--110.4(455B) Hydrogeologic investigation.

110.4(1) Groundwater level measurements. The elevation of the water table shall be determined at or near the location of each soil boring which penetrates the water table. The water table may be determined using a completed water table monitoring well, piezometer, or even an open bore hole. The bottom of a piezometer or open bore hole used to measure water table elevation shall be no more than five feet below the water table.

The apparent horizontal groundwater flow direction should be determined based on water table measurements. Vertical groundwater flow shall then be assessed in at least two profiles approximately parallel to the apparent horizontal flow direction. Vertical groundwater flow shall be assessed using at least two well clusters per profile. Each well cluster shall contain a water table monitoring well or piezometer and additional water level monitoring points based on site conditions as follows:

a. If the water table is in the uppermost aquifer, one additional water level monitoring point is to be located near the base of the aquifer or at least 20 feet below the base of the water table monitoring point. This additional monitoring point may not be required if the aquifer is less than 20 feet thick.

expected seasonal fluctuations of the water table. Screen length for piezometers should be two feet or less.

Multiple screened single-cased wells are prohibited.

110.11(4) Filter pack.

a. To prevent other materials from coming in contact with the well screen, extend the filter pack at least 18 inches above and at least 12 inches below the well screen.

b. Size must be based on sieve analysis of sand and gravel formation. The filter pack material must be 2.5 to 3 times larger than 50 percent grain size of the zone being monitored.

110.11(5) Grouting.

a. The annular space above the screened section must be sealed with expanding cement or bentonite grout. The vertical dimension of this seal must be a minimum of three feet.

b. The annular space between the seal and to just below the frostline must be backfilled with an impervious material such as bentonite or expanding cement.

c. The remaining annular space must be grouted with expanding cement to the ground surface.

d. Grouting materials must be installed from the top of the filter pack up in one continuous operation with a tremie tube.

110.11(6) Well protection.

a. Plastic cased wells. A protective metal casing must be installed around the well casing. The inside diameter of the protective metal casing should be at least two inches larger than the outside diameter of the well casing. Extend the protective metal casing from a minimum of one foot below the frostline to slightly above the well casing top. The protective casing should be shortened or omitted if it covers part of the well screen. Seal or immobilize the protective casing with a concrete plug around the outside. The bottom of the concrete plug must extend at least one foot below the frostline. The concrete plug should be shortened if it covers part of the well screen. Extend the top of the plug approximately three to six inches above the ground surface and slope it away from the well approximately three feet. Soil may be placed above the plug. Seal the inside of the protective casing with a bentonite slurry. Place a vented cap on the well casing and a protective locking cap on the metal casing. The lockable cap must be kept locked when the well is not in use.

b. Metal cased wells. Extend the concrete plug from at least one foot below the frostline to approximately three to six inches above the ground surface and slope it away from the well approximately three feet. Soil may be placed on top of the concrete plug. Place a vented, locking cap on the casing. The lockable cap must be kept locked when the well is not in use. See Figure 1.

c. To protect against accidental damage, a ring of brightly colored posts or other protective devices must be installed around all wells.

110.11(7) Well drilling.

a. The owner or operator must ensure that in all phases of drilling, well installation and completion, the methods and materials used do not introduce substances that may alter the results of water quality analyses.

b. Well drilling equipment coming into contact with contaminants in the bore hole or above ground must be thoroughly cleaned to avoid spreading contamination to other depths or locations. Contaminated materials or leachate from wells must not be discharged onto the ground surface or into

4. (2) **COMMENT:** Re: "Leachate" (def) A change in the definition of leachate is suggested to distinguish between water draining through the fill and remaining uncontaminated.and that which passes through and becomes contaminated.

RESPONSE: Monitoring of water which has come in contact with solid waste must be conducted to determine if contamination has occurred.

RECOMMENDED ACTION: Agree to delete "including suspended solids" from definition as proposed.

5. (1) **COMMENT:** Re: "Perched saturateu zone" (def) The preferred definition would reference a high permeability lens within a low permeability zone.

RESPONSE: It is felt that the definition as proposed is more descriptive of the mechanism by which a perched saturated zone would be created. The Geological Survey Bureau concurs.

RECOMMENDED ACTION: No change.

6. (1) **COMMENT:** Re: "Peizometers" (def) A driven well point can not be utilized as a piezometer because it is not sealed. Also plugging of the screen can occur.

RESPONSE: The definition as propos clearly states that the well must be sealed along the entire length. It will depend upon the cohesiveness of the overlying soils as to whether or not this latter construction technique will meet the first condition. As this may not be achievable in certain situations using driven wells, we will review proposed techniques on a site specific basis.

RECOMMENDED ACTION: Delete last sentence of definition.

7. (2) **COMMENT:** Re: "Potentiometric surface" (def) Substitute the following..."is an imaginary surface that represents the total head of ground water in a confined aquifer that is defined by the level to which water will rise in wells and piezometers."

RESPONSE: The suggested definition concludes by defining the term essentially as it is in the proposed rule. We are not convinced that the reference to "total head of ground water" adds clarity.

RECOMMENDED ACTION: No change.

8. (2) **COMMENT:** Re: "Specific yield" (def) The definition as proposed is incorrect. The following definition is suggested. "Specific yield is the ratio of the volume of water that a given mass of saturated rock or soil will yield by gravity to the volume of that mass. This ratio is stated as a percentage."

analysis and comparison procedures to include student t-test, etc. (per Crane et al)? It is noted that simplified statistical methods such as t-test are no longer required by the EPA Subtitle C program for ground water monitoring because ground water is not normally distributed. Therefore such tests have frequently resulted in false positive indications. EPA revised regulations now allow greater latitude in the selection of a statistically representative analysis method (per Repa). As the data base increases, more sophisticated statistical analysis should be used (per Kross).

RESPONSE: The use of standard deviation is intended to provide a simple mechanism to require reporting to the department. Alternative statistical analysis and further evaluation of the significance of any observed deviation would be logical steps before increased monitoring requirements.

RECOMMENDED ACTION: No change.

18. (1)(3) **COMMENTS:** Re: Section 103.2(8)d.3 (as amended) Graphing the data as described by this section for all wells and all parameters as a hard copy will be to voluminous and costly.

RESPONSE: The data collection and analysis represents the major operational cost of the monitoring system. We believe that graphic presentation is the most effective means of assimilating the information. If the information is not understandably presented, it voids the investment associated with collection and analysis. We will accept computer compatible software presentations which will create graphic displays on departmental computers/printers.

RECOMMENDED ACTION: No change.

19. (2)(3)(4) **COMMENTS:** Re: Section 103.2(9)a. What is the definition of leachate migration? It is suggested that a risk assessment be performed prior to requiring remedial action. It is suggested that not only actual leachate migration but suspected migration based on monitoring or other observations be specifically cited as reason to require an assessment plan (per Kross).

RESPONSE: If monitoring data indicates that a deterioration of ground water quality is occurring by comparison of upgradient and downgradient conditions, and if no other contributory influences can be identified except the landfill, we believe that leachate migration is occurring. A clear and definitive situation meeting all of the aforementioned criteria at one time is unlikely. For this reason, a determination that leachate migration is occurring will necessarily be more qualitative than quantitative. We do not believe that the department has the regulatory discretion to impose the extensive requirements of an assessment plan prior to confirmation of leachate migration by monitoring.

RECOMMENDED ACTION: No change.

34. (4) **COMMENTS:** Re: Section 110.10(6) It is suggested that all potable water supply wells used by the landfill personnel be included in the regular monitoring program plus monitoring by regular bacterial safety analysis.

RESPONSE: This is a reasonable and prudent suggestion, but beyond the minimums intended by these rules.

RECOMMENDED ACTION: No change.

35. (1)(2) **COMMENTS:** Re: Section 110.11 (as proposed) It is felt that the typical well detail is appropriate to water table wells only. Other construction details will be more appropriate to confined aquifers, bedrock wells, etc. Also the most appropriate length of screen is dependent upon the strata in which it is to be located. It is suggested that protective devises need only be provided in high traffic areas.

REPONSE: The general design given by EPD is appropriate for all unconsolidated materials. Bedrock wells are often constructed with an "open hole" interval instead of a "screened" interval; these may or may not be gravel-packed. All areas of landfill sites are considered potentially "high traffic."

RECOMMENDED ACTION: Add new section 110.13 as previously described.

36. (1)(2)(3)(6)(7)(8)(10)(13)(14) **COMMENTS:** Numerous specific and general examples of the financial impact of the proposed rule are cited, as well as suggested alternative monitoring schedules and parameters. A review by industry professionals and/or their trade organizations requested.

RESPONSE: This rule has been extensively heard in 2 separate public hearings. Numerous and varied comments have been received. The proposed rules have been extensively modified as a result of these comments. Further debate is not likely to produce a finished product wholly satisfactory to all parties.

RECOMMENDED ACTION: Adopt rule as proposed with specific changes noted.

FT-1.115/rg

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 10 DECISION

PUBLIC HEARING REQUEST -- FY89 CONSTRUCTION GRANT STATE PROJECT LIST

It is recommended that the Commission authorize the department to hold a public hearing on June 29, 1988 to receive comments on the proposed FY89 Construction Grant State Project List which was presented as an informational item at the April meeting.

The FY89 Construction Grant Project List was developed in accordance with provisions contained in the Priority System which is part of departmental rules 567--91(455B) Iowa Administrative Code. Approximately 300 communities were scored using a combination of factors such as operational monitoring data from calendar years 1986-87, water quality standards for specific receiving streams and the most current available population data. The FY89 funding summary represents input from the department's Construction Grants staff. The funding summary and fundable list includes project steps scheduled for award of grant assistance from projected funds available for obligation during the fiscal year, in accordance with applicable requirements contained in the priority system. Copies of the proposed list and notice of intended action will be mailed to all facilities on the list; to EPA in Kansas City; and the notice will also appear in the Des Moines Register, all at least 30 days prior to the hearing date.

Following the public hearing and comment period concerning the proposed FY89 Project List, staff will address all comments and prepare final recommendations for consideration at the August Commission meeting. If approved, the FY89 Construction Grants Project List would become effective on October 1, 1989.

Duane Brown
May 3, 1988

(I19.MIN/ac)

DESCRIPTION OF STATE PROJECT PRIORITY LIST INFORMATION

COLUMN	DESCRIPTION
Priority Rank Priority Points	Priority Rank - This is a sequential order of priorities by project and step. Priority Points - This is the point source rating according to the criteria contained in 91.10(455B).
Applicant Legal Name County Name Street Address City, Zip Code	Identification of the eligible applicant.
Permit No.	Permit No. - Iowa NPDES discharge permit most closely releated to the applicant's project. If the project does not have municipal wastewater treatment and collection facilities, "unsewered" is entered. Auth/Fac No. - An identifying number for the facility used in the national Needs Survey conducted by EPA. If multiple authorities exist, the word "MULTIPLES" is entered in place of the authority/facility number.
Grant No. Parent Project	This is the grant number of the predecessor step or project for this project.
Project Number	This is the grant number including a state assigned facility need number and sequence number. The sequence number is the last two digits and indicates the number of the grant award to the applicant under the assigned facility need number (01 indicates first grant award, 02 second, etc.).
Project Step Type	Project Step 3 - Construction 4 - Combination grant for design and construction Type N - New grant award (01 sequence number) C - Continuation grant award (other than 01 sequence number)
State Cert.	Date (year-month-day) by which State anticipates the grant application will be forwarded to EPA for grant award. A preceding F signifies an actual endorsement date, and P indicates a projected target date.
Proj. Desc.	Project Description T - Wastewater treatment facility IT - Interceptor sewer integral to the treatment works as well as a treatment facility Rehab - Cost effective sewer system rehabilitation related to tratment works I(T) - Interceptor sewer construction in lieu of, or an integral phase of treatment works construction, assigned a treatment priority ranking EB - Equalization basin Relief - Relief sewers to transport nonexcessive I/I to treatment facilities Coll - Sanitary sewer collection system Storm Sewer - Cost effective removal of inflow sources; reconnection to storm sewers

FY 1989 FUNDABLE LIST SUMMARY OF FUNDS

I. Estimated EPA Assistance Required			
A. Estimated assistance for projects on fundable list			$35,584,160
B. Designated reserve for grant increases			3,536,708
C. Reserve for grant increases for alternative technology	FY 1988 Allotment	$1,017,089	1,561,077
	FY 1989 Allotment	$ 543,988	
D. Reserve for grant increases for innovative technology	FY 1987 Allotment	$ 89,643	
	FY 1988 Allotment	$ 155,425	322,781
	FY 1989 Allotment	$ 77,713	
E. Reserve for state management assistance 205(g)	FY 1987 Allotment	$1,314,048	
	FY 1988 Allotment	$1,314,048	3,285,120
	FY 1989 Allotment	$ 155,425	
F. Reserve for water quality Management 205(j)(1)	FY 1988 Allotment	$ 310,850	466,275
	FY 1989 Allotment	155,425	
G. Reserve for non-point source management 205(j)(5)	FY 1988 Allotment	$ 310,850	466,275
	FY 1989 Allotment	$ 155,425	
H. Reserve for advances of allowances (no need projected for FY 1989)			
Total grant needs			$45,222,396
II. Non-additive Set-Aside Reserve Funds			
A. Reserve for alternative systems for small communities	FY 1988 Allotment	$1,243,400	
	FY 1989 Allotment	$ 621,700	
		$1,865,100	
B. Quota for unsewered communities	FY 1988 Allotment	$1,554,250	
	FY 1989 Allotment	$ 777,125	
		$2,331,375	
III. Available Funds			
A. FY 73-86 Carryover (5/01/88)			$ 115,096
B. FY 1987 Allotment Balance (5/01/88)			1,414,043
C. FY 1988 Allotment Balance (5/01/88)			28,150,757
D. Anticipated FY 1989 Allotment			15,542,500
			$45,222,396

16. Contested Case Appeal: Handi-Klasp Company, Inc. and Royal Products Company, Inc. (Combs) Decision.

17. Final Rule--Chapter 4, Rulemaking Procedures and Chapter 5, Petition for Rulemaking. (Combs) Decision.

18. Status Report on Iowa City Case. (Combs) Informational.

19. Slide Presentation, Roadside Vegetation Management. (Combs) Informational.

20. Legislation Update. (Combs) Informational.

21. Address Items for Next Meeting.

REMINDER: 1:30 p.m. Tuesday, May 17 - Public Hearings on Groundwater Standards - to be held in the Wallace Building Auditorium - 2nd floor.

NEXT MEETING DATES
June 20-21, 1988
July 18-19, 1988
August 15-16, 1988

Environmental Protection Division, Underground Storage Tank Section. The other six personal computers and associated hardware and software will be sent to each of our regional offices of the Iowa Department of Natural Resources.

The federal government will pay for 75 percent of the cost of this acquisition.

Stan Kuhn
May 3, 1988

(I18.MIN/sc)

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 8 INFORMATIONAL

MONTHLY REPORTS

The following monthly reports are enclosed with the agenda for the Commission's information.

1. Rulemaking Status Report

2. Variance Report

3. Hazardous Substance/Emergency Response Report

4. Enforcement Status Report

5. Contested Case Status Report

Members of the department will be present to expand upon these reports and answer questions.

Allan Stokes
May 4, 1988

May 3, 1988

TO: EPC

FROM: Mike Murphy

RE: Enforcement Report Update

The following new enforcement actions were taken last month:

Name, Location and Field Office Number	Program	Alleged Violation	Action	Date
Lee Stinson, Iowa Falls (2)	Solid Waste	Operation w/o permit, open dumping.	Order	4/01/88
Mike's Prairie Home, Ollie (6)	Drinking Water	Monitoring/reporting-nitrate.	Order/Penalty	4/14/88
Beaver Hills Country Club, Cedar Falls (1)	Drinking Water	Monitoring/reporting-nitrate.	Order/Penalty	4/14/88
Hills School, Iowa City (6)	Drinking Water	Monitoring/reporting-nitrate.	Order/Penalty	4/14/88
Hawkeye Motel & Reisch Auction, Mason City (2)	Drinking Water	Monitoring/reporting-nitrate.	Order/Penalty	4/14/88
City of Braddyville (4)	Drinking Water	Monitoring/reporting-radioactivity.	Order/Penalty	4/14/88
Sunrise Trailer Park, Cedar Rapids (1)	Drinking Water	Monitoring/reporting-radioactivity.	Order/Penalty	4/14/88
Twelve Mile House, Bernard (1)	Drinking Water	MCL - Benzene	Emergency Order	4/21/88
City of Iowa City (6)	Wastewater	MIP	Referred to AG	4/26/88
Lakewood Sanitary District (5)	Wastewater	Maintenance	Referred to AG	4/26/88
City of Mt. Pleasant (6)	Wastewater	MIP	Referred to AG	4/26/88
Ellies Bar and Grill, Lamoni (5)	Drinking Water	Failure to monitor, MCL-bacteria.	Referred to AG	4/26/88
City of Sheldon (3)	Wastewater	Monitoring	Referred to AG	4/26/88

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DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION COMMISSION
CONTESTED CASES
MAY, 1988

DATE RECEIVED	NAME OF CASE	ACTION APPEALED	PROGRAM	ASSIGNED TO	STATUS
1-15-88	First Iowa State Bank	Administrative Order	SW	Kennedy	Continued to 6-14-88.
1-22-88	IBP, Fort Dodge	NPDES Permit	WW	Hansen	Negotiating before filing.
2-04-88	Reavendale Heights, Woodman; Westwood Hills	Administrative Order	SW	Landa	Plans approved. Continued pending resolution.
2-05-88	Warren County Brenton Bank	Administrative Order	UT	Landa	Investigation begin.
2-10-88	Lehigh Clay Products	Administrative Order	WC	Landa	Appealed; revised plans approved.
2-22-88	Amana	Tax Certification Denial	AQ/WW	Landa	Appealed. Request for additional information.
2-25-88	South Central Iowa Landfill Agency	Administrative Order	SW	Landa	Settled.
2-29-88	Lynn Henneman Feedlot	Administrative Order	WW	Murphy	New case.
3-01-88	Cloyd Foland	Administrative Order	FP	Clark	Awaiting Petition filing.
3-03-88	Motel Grinnel	Administrative Order	WW	Hansen	Hearing continued. Negotiating.
3-08-88	Benton County Care Facility	Administrative Order	WS	Murphy	Settled.
3-27-88	Otter Creek Station	Administrative Order	WS	Murphy	Settled.
4-13-88	Land O'Lakes, Inc.	Administrative Order	WW	Murphy	New case.
4-28-88	Harry Brocka, Enge[illegible] Brocka, Gordon Brocka	Administrative Order	WW	Murphy	New case.

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The hydrologic monitoring system shall be planned, designed and constructed in accordance with the provisions of Chapter 110(455B). A hydrologic monitoring system plan shall be submitted to the department for review and approval with any application for a new permit, with an application for permit amendments which involve major lateral and/or vertical expansion, with application for permit renewal, or within 120 days of receiving notice from the department. These requirements apply to any sanitary landfill in operation after July 1, 1987. Within 90 days after the hydrologic monitoring system plan is approved by the department, the construction of hydrologic monitoring system shall be completed in accordance with the plan.

103.2(4) Hydrologic monitoring system operating requirements.

a. Operational sampling requirements. All sampling shall be conducted in accordance with an approved sampling protocol, components of which are described in rule 110.8(455B).

b. Groundwater levels. The elevation of water in each monitoring well shall be measured monthly and recorded to the nearest 0.01 foot. Level measurements must be made before a well is evacuated for sample collection.

c. Surface water levels. The water level or flow rate of each surface water body sampled shall be measured and recorded at the time of sample collection.

d. First year water sampling. During the first year of operation of the hydrologic monitoring system, samples shall be collected quarterly from each groundwater monitoring well and surface water monitoring point. The purpose of this sampling is to determine baseline water quality information and enable initial estimation of water quality variability. Samples shall be analyzed for the following parameters in addition to the parameters listed in paragraph "e" of this section, plus any additional parameter deemed necessary by the department.

1. Arsenic, dissolved.
2. Barium, dissolved.
3. Cadmium, dissolved.
4. Chromium, total dissolved.
5. Lead, dissolved.
6. Mercury, dissolved.
7. Magnesium, dissolved.
8. Zinc, dissolved.
9. Copper, dissolved.
10. Benzene.
11. Carbon tetrachloride.
12. 1,2-Dichloroethane.
13. Trichloroethylene.
14. 1,1,1-Trichloroethane.
15. 1,1-Dichlorethylene.
16. Paradichlorobenzene.

e. Routine quarterly water sampling. After the first year, each monitoring point must be sampled quarterly as specified in the facility's operation permit and analyzed for the following parameters.

1. Chloride.
2. Specific conductance (field measurement).
3. pH (field measurement).
4. Ammonia nitrogen.
5. Iron, dissolved.
6. Chemical oxygen demand.
7. Temperature (field measurement)

b. If the uppermost aquifer is less than 50 feet below the water table, an additional water level monitoring point shall be located at the top of the aquifer.

c. If the uppermost aquifer is more than 50 feet below the water table, additional water level monitoring points shall be placed at depths of 30 feet and 50 feet below the water table.

d. If required, the one deeper soil boring into bedrock shall be used as a site for one well cluster. Water table monitoring points in this cluster shall correspond to the other well cluster used for a profile. In addition, water level monitoring points shall be placed at the bottom of the boring and, if possible, at the top and bottom of the uppermost aquifer.

Groundwater level measurements should be made after the water levels have stabilized in the monitoring point; at least 24 hours after completion of the monitoring well, installation of the peizometer, or placement of the boring. Each set of water level measurements shall be made in as short a time frame as possible; within a eight-hour period maximum.

110.4(2) In-situ permeability tests. In-situ permeability tests shall be conducted on each monitoring well and piezometer in each well cluster.

a. Pumping test. If more than one monitoring point is located in the uppermost aquifer, a pumping test should be conducted at one or more upper aquifer monitoring point. A pumping test involves pumping at constant rate from one well while observing water levels in other wells. The pumping rate should be as high as possible without dewatering the well. Water level measurements in other uppermost aquifer wells should be measured at frequent intervals near the start of the test and then at progressively longer intervals (e.g., one-minute intervals to 10 minutes, five-minute intervals to an hour, 15-minute intervals to two hours, and half-hour intervals thereafter). Continuous water level recording is preferable. Water levels in wells not located in the uppermost aquifer should be recorded throughout the test at regular intervals (e.g., every half hour). Water levels in all wells should be measured 24 hours prior to the test and just before the test. The test duration should be at least four hours. Longer tests may be necessary if other uppermost aquifer monitoring points are slow to respond.

b. Bail and slug tests. Monitoring wells and piezometers located in materials with low permeabilities should be tested using bail or slug tests. These tests involve rapidly removing or adding a known volume of water to a well and then recording water levels in the well as it recovers to its original level. Typically, the necessary frequency of measurements will be similar to that required of pumping tests. In materials of very low permeability, less frequent measurements are necessary; and in materials of higher permeability, more frequent measurements may be necessary.

567--110.5(455B) Hydrologic monitoring system planning report requirements. The hydrologic monitoring system planning report shall contain a description of field investigations and presentation of results including a description of the field and laboratory testing methods; a presentation of the test results and field measurements; a reasonable effort to inventory all active, unused, and abandoned wells within one mile of the facility shall be made; and the identification of all public water supply wells and wells with water withdrawal permits pursuant to 567--Chapters 50, 51 and 52 within three miles of the facility. Well logs, other available information on well construction, static water levels, and usage shall be obtained. The well inventory should be based on thorough reviews of state and local collections of well logs and, when possible, interviews or surveys of well owners.

ponds or streams so as to cause environmental harm in the processes of drilling or well development.

c. The owner or operator must ensure that, at a minimum, the following well design and construction log information are retained at the site and a copy of this information sent to the department.

Date/time of construction;
Name and address of the driller;
Drilling method and drilling fluid used;
Soil sampling methods;
Surveyed location (±0.5 ft.);
Soil and rock classifications;
Field observations;
Well name/number;
Bore hole diameter and well casing diameter;
Well depth (±0.1 ft.);
Water level measurements;
Drilling and lithologic logs;
Casing materials, inside diameter and weight or wall thickness;
Screen materials;
Casing and screen joint type;
Screen slot size/length;
Filter pack material/size; (depths from _ to _)
Filter pack volume;
Filter pack replacement method;
Sealant materials; (depths from __ to __)
Sealant volume;
Sealant placement method;
Grouting schedule and materials;
Surface seal design/construction; (depths from __ to __)
Type of protection well cap;
Ground surface elevation (±0.1 ft.)
Well cap elevation (±0.01 ft.);
Top of casing elevation (±0.01 ft.); and
Detailed drawing of well (include dimensions).

110.11(8) Well Development. Prior to use of the monitoring well for water quality monitoring purposes, well development is required to ensure the collection of representative groundwater samples. Procedures used in well development involve using a surge block, bailing or surging by pumping to produce a movement of water at alternately high and low velocities into and out of the well screen and gravel pack in order to loosen and remove fine materials. Development of low hydraulic conductivity wells may require the circulation of water down the well casing, out through the screen and gravel pack, and up the open bore hole prior to the placement of grout or seal in the annulus. Any additional water used must be of a quality so as not to interfere with future groundwater quality determinations. Following surging, the well is pumped until the water does not contain sufficient quantities of suspended solids.

567--110.12(455B) Sealing abandoned wells and boreholes. Bore holes, piezometers and observation wells not used for groundwater monitoring must be sealed. Document in writing the location of the abandoned well or bore hole with reference to the landfill's coordinate system and method of sealing. The document must be retained at the landfill with a copy sent to the department.

Re: "Storage coefficient" (def) The definition as proposed is incorrect. The following definition is suggested. "Storage coefficient is the volume of water an aquifer releases from or takes into storage per unit surface area of acquifer per unit change in head."

Re: "Transmissivity" (def) The definition as proposed is overly simplistic. The following definition is suggested. "Transmissivity is the rate at which water is transmitted through a unit width of an aquifer under a unit hydraulic gradient."

RESPONSE: The proposed language was intended for the non-technical landfill officials. The sugested language is more technically precise.

RECOMMENDED ACTION: Change per suggested definitions presented above.

9. (1)(2) **COMMENT:** Re: "Unconfined Aquifer" (def) The use of the term confined aquifer in the second line of the definition as proposed should refer to an unconfined aquifer. The definition as proposed is incorrect and unclear. The suggest definition should define the term as an aquifer where the water table is exposed to the atmosphere through openings in the overlying materials.

RESPONSE: The use of the word "confined" was inadvertant and should have been "unconfined".

RECOMMENDED ACTION: Change that part of the last sentence to read as follows: "The level of water in a well in an unconfined aquifer is..."

10. (1)(2) **COMMENTS:** Re: "Water Table" (def) The differentiation between water table and upper most aquifer is confusing, noting that the water table is defined as part of the aquifer. The definition is considered incorrect with regard to the observation of water level because of the existence of vertical gradients in an unconfined aquifer. A suggested definition is "the surface between the vadose zone (unsaturated zone) and the ground water, that surface of a body of unconfined ground water at which the pressure is equal to that of the atmosphere."

RESPONSE: The definition as proposed is confusing. We feel that the deletion of the second sentence in its entirety will clarify.

RECOMMENDED ACTION: Change by deleting the second sentence.

11. (2)(5)(7) **COMMENTS:** Re: Chapter 103 (in total) Replace monitoring program as proposed with one structured around the following concepts. First, require quarterly monitoring of general water quality parameters and evaluate for statistically significant increases above background levels. Second, if such an increase is observed, continue quarterly monitoring, but for an expanded list of parameters at those specific wells where the increase occurred. While at this response eschelon, determine the source and extent of contamination. Third, if the landfill is the source, perform risk assessment to determine reasonable probability of adverse human health and environmental effects. And

20. (1) **COMMENTS**: Re: Section 103.2(9) It is suggested that "noncontamination" and "nondeterioration" are inappropriate standards for landfills. It is deemed a major point that 1) a standard be established and 2) a reasonable belief exist that the standard is being violated beyond the property boundary, prior to requiring the development of a remedial action plan.

RESPONSE: The Ground Water Protection Bill clearly requires protection of ground water to the maximum extent practical. We do not accept the premise that avoidable or reversible contamination is impractical to prevent or remove below a set limit. Our approach is to require a ground water assessment plan only when leachate or contaminant migration is substantiated by monitoring data.

RECOMMENDATED ACTION: No change.

21. (1)(2) **COMMENTS**: Re: Section 103.2(10) (as amended) Submittal of a post-closure plan 6 months prior to planned closure is considered to be excessibly long. (per Crane et al) Owners or operators should be required to develop a post-closure monitoring plan within 12 months of the effective date of the rule, or initial receipt of waste, whichever is later. It is felt that a 30-year post-closure period is overly stringent (per Repa).

RESPONSE: The Ground Water Protection Bill mandates 30-year post-closure monitoring at all permitted landfills. This cannot be changed by rule.

The 6 month requirement for a post-closure monitoring plan is not excessive. This allows for the department to receive the plan and require additional information if the submitted information is inadequate. It is conceivable that additional monitoring wells or peizometers may have to be installed.

RECOMMENDED ACTION: No Change.

22. (1)(2)(5) **COMMENTS**: Re: Section 110.3(1) (as proposed) The rule as proposed does not insure that the site will be adequately monitored. The number, depth, and method of boring should be cited as guidance only. All of these parameters must be established on a site specific basis if they are to be adequate to monitor the site. It is not clear whether half the borings located outside the fill area must meet the minimum or the maximum of the three conditions specified.

RESPONSE: The stated number and depth of borings are minimums only, if more are needed to adequately describe the site stratigraphy/hydrology they can be done. The number and depths are in line with other states' approaches.

RECOMMENDED ACTION: No Change.

23. (1)(2)(3) **COMMENTS**: Re: Section 110.3(2) (as proposed) A split spoon cannot be used for collection of an undisturbed soil sample. A Shelby

Assumptions

- Each Facility Has Two (2) Downgradient Sides
- Each Facility Has Separate Water Table & Aquifer
- Each Facility Has Three (3) Surface Water Monitoring Points
- Each Facility Has Ten (10) years Disposal Life Remaining at Current Tons/Day.
- Each Facility Will Maintain Same Monitoring Regimen Through 30 year Post Closure Period.
- Each Facility operates 5 days/week

Costs

- $500/well - Water Table - Construction (est)
- $1000/well - Aquifer - Construction (est)
- $1,140 / Sample Point - 1st year Costs
  ((200 + 55)4 + 120)
- $340/sample Point - Subsequent year Costs
  ((55 × 4) + 120)

PROPOSED

STATE OF IOWA

IOWA DEPARTMENT OF NATURAL RESOURCES

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

FOR COMMENT AT PUBLIC HEARING

CONSTRUCTION GRANTS FUNDING SUMMARY

The attached funding summary is condensed from the proposed Fiscal Year 1989 State Project Priority List. It includes, in priority order, projects anticipated to be funded with available federal allotments through Fiscal Year 1989. Projects from the Fiscal Year 1988 Fundable List which have not been awarded a grant are shown in the first column. Projects in the second columb comprise the proposed Fiscal Year 1989 Fundable List, providing a federal appropriation is made. The Fiscal Year 1989 Fundable Leit is based on an assumed allotment of $15,542.500 for Fiscal Year 1989.

It is emphasized that the list as shown is dependent upon appropriation of the full Fiscal Year 1989 federal authorization and the allotment of $15,542,500 for Iowa.

COLUMN	DESCRIPTION
Sml Comm	Identification of a project as eligible for increased grant funding from the reserve set aside for small communities proposing alternative to conventional wastewater handling systems. R indicates an eligible community of 3,500 people or less. O indicates eligibility of a sparsely populated area of a larger municipality.
Innov Elig Cost Altern Elig Cost	Innov Elig Cost - Projected portion of a project qualifying as innovative technology by EPA guidelines. Altern Elig Cost - Projected portion of a project qualifying as innovative technology by EPA guidelines.
Total Eligible Cost	Projected costs eligible for EPA grant participation.
Est EPA Assist	Estimated amount of EPA grant assistance required for the project.
Elig Cost by Needs Cat	Category: I - Secondary Treatment II - More Stringent Treatment IIIA - Infiltration/Inflow Correction IIIB - Major Sewer System Rehabilitation IVA - New Collectors and Appurtenances IVB - New Interceptors and Appurtenances V - Correction of Combined Sewer Overflows
Enf Req	Enforceable requirement to be satisfied by the project: A - Project satisfies the conditions or limitations of a Section 402 or 404 permit which, if violated, would result in the issuance of a compliance order or initiation of a civil or criminal action under Section 309 of the Clean Water Act. B - Permit has not been issued, but project satisfies a condition or limitation which would be included in the permit when issued. C - Permit is not applicable but project satisfies a requirement anticipated to be necessary to meet applicable criteria for best practicable waste treatment technology. D - Project does not meet an enforceable requirement of the Act. Y - The project, in its entirety, satisfies the enforceable requirements of the Act for the condition stated in the preceding character position. P - Portions of the project do not satisfy the enforceable requirement of the condition stated in the preceding character position. technology.

A:CG-FY89.PRM

FISCAL YEAR 1988

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (59) Priority Points (HR)	Applicant Legal Name County Name Street Address City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (C2) Auth/Fac. No. (32)	Grant Number Parent Project (B2)	Project Number (02, 01, 54) 03 - 0	Step (07) Type (04)	St Cert (A5)	Proj Desc (20)	Ssi Comm (33)	Innov Elig Cost (Y7) Altern Elig Cost (Y8)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (Y0-Y6)	Enf Req
0030 650.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 55 Amend 1	3 C		T Segments 5,6A			18,806,000	14,104,500	1 18,806,000	AY
0040 650.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 56	3 C		I Saylor Creek Phase 1			400,000	300,000	IVB 400,000	AY
0050 650.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 57	3 C		I, EB Area C			1,860,000	1,395,000	IVB 1,860,000	AY
0060 650.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 58	3 C		I,EB Highland Hills Phase 1			1,100,000	825,000	IVB 1,100,000	AY
0070 650.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 59	3 C		I,LS,EB Westside			12,180,000	9,135,000	IVB 12,180,000	AY
0080 650.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 60	3 C		I Westside N Br FM			4,020,000	3,015,000	IVB 4,020,000	AY

ENVIRONMENTAL PROTECTION COMMISSION

NAME (Please print)	COMPANY OR AGENCY	CITY
DANNY VEST	GROWMARK, INC.	BLOOMINGTON, IL.
Sandy Tuckle	Scott County Landfill	Buffalo/Dav.
Judy Daubenmier	CR Gazette	DM Bureau
	E.A. Hickok & Assoc.	D.M.
Larry Crane		
Don Jensen	CORN BELT POWER	HUMBOLDT IA
JANE McALLISTER	—	NORWALK, IA.
Milton Eichen	Ia Fert & Chem	D M. Ia
Charles Bullard	D.M. Register	
Judy Daubenmier	CR Gazette	
Keith Cheng	Hyg Lab	Iowa City
Kay Henderson	RADIO IA	DM
Ron Nemmers	E.A. Hickok	DM
[illegible]	HANDI-KLASP	W.C.
Pat Nichols	Handi-Klasp Co.	Webster City
JIM STUEDEMANN	WILTON STEEL PROCESSING	WILTON, IA
Robert L. Andersen	[illegible]	Des Moines

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 7 INFORMATIONAL

STATUS REPORT ON THE WASTE MANAGEMENT AUTHORITY DIVISION

The Commission will be given a review of the Waste Management Authority Division's organization and programs. A description of program activities since the division's establishment in October of 1987 will be provided.

Ruth Bender
May 4, 1988

(I20.MIN/sc)

IOWA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION COMMISSION
RULEMAKING STATUS REPORT
MAY 1, 1988

PROPOSAL	DRAFT TO COMMISSION	NOTICE PUBLISHED	RULES REVIEW COMMITTEE	HEARING	SUMMARY OF COMMENTS & RECOMMENDATIONS TO COMMISSION	RULES ADOPTED	RULES PUBLISHED	RULE EFFECTIVE
1. Ch. 4 - Rulemaking Procedures	2/16/88	3/09/88	4-19-88	---	5/16/88	*5/16/88	*6/15/88	*7/20/88
2. Ch. 5 - Petition for Rulemaking	2/16/88	3/09/88	4-19-88	---	5/16/88	*5/16/88	*6/15/88	*7/20/88
3. Ch. 7 - Contested Case Procedures	3/21/88	4/20/88		---				
4. Ch. 22 - Air Quality Permitting	4/25/88	*5/18/88		6/08/88 6/15/88 6/22/88				
5. Ch. 38 - Private Well Construction Permit	12/16/87	1/13/88	3/08/88	2/03/88 2/05/88 2/08/88	4/25/88	4/25/88	*5/18/88	*6/22/88
6. Ch. 39 - Well Plugging	3/21/88	4/21/88		5/12/88 5/13/88 5/16/88				
7. Ch. 40, 41 - Water Supply	4/25/88	*5/18/88		6/13/88 6/14/88 6/15/88				
8. Ch. 47 - Grants to Counties	2/16/88	3/09/88	4/19/88	3/29/88 3/31/88 4/04/88	4/25/88	4/25/88	*5/18/88	*6/22/88
9. Ch. 70 - Channel Changes	4/25/88	*5/18/88		6/09/88				
10. Chs. 100, 105, 110 - Landfill Ground Water Monitoring	10/20/87	11/18/87	12/10/87	1/06/88 1/07/88 1/08/88	5/16/88	*5/16/88	*6/15/88	*7/20/88

*Projected

D:[illegible]

IOWA DEPARTMENT OF NATURAL RESOURCES
Government Liaison Bureau

DATE: May 1, 1988

TO: Environmental Protection Commission

FROM: Michael P. Murphy

SUBJECT: Summary of Administrative Penalties

The following administrative penalties are due:

NAME/LOCATION	AMOUNT	DUE DATE
*Shelter Shield (Buffalo Center)	$1,000	12-03-86
*Cedar Hills Apartments (Dubuque)	1,000	12-29-86
*City of Dysart	400	3-13-87
*Country Corner Cafe (Pacific Junction)	451	8-05-87
*JTM Indust./MacDade/Leamer (Pleasant Valley)	1,000	8-12-87
*Big Rock Tap	660	9-21-87
*Twelve Mile House (Bernard)	339	10-28-87
*OK Lounge (Marion)	448	11-01-87
*City of Sheldon	900	1-02-88
*Ellie's Bar and Grill (Grand River)	515	3-05-88
Donald Caraway (Linn County)	500	3-06-88
City of Lynnville	225	3-13-88
**Lawrence Payne (Ottumwa)	630	3-15-88
**Don Scribner (Nashua)	1,000	3-28-88
**Elings/Catron/Frey (Des Moines)	400	4-15-88
Breitbach's Tap (Sherrill)	230	4-19-88
Camp Okoboji	230	4-22-88
David Francy (New London)	800	4-26-88

* Referred to the Attorney General
** On Payment Schedule

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 9 DECISION

ADOPTED RULE--CHAPTER 100, SCOPE OF TITLE - DEFINITIONS - FORMS - RULES OF PRACTICE--CHAPTER 103, SANITARY LANDFILLS--CHAPTER 110, DESIGN, CONSTRUCTION AND OPERATION STANDARDS FOR SOLID WASTE MANAGEMENT FACILITIES

The Commission is requested to adopt rules amending Chapters 100 and 103, and creating a new Chapter 110 of the ARC.

Attached is a copy of the rules and our responsiveness summary. We received extensive comments on the rules as published in the Notice of Intended Action. Some comments have resulted in changes to the proposed rule.

As authorized by the Commission, public hearings were held at various locations across the state on January 6, 7, and 8, 1988. All comments oral and written were considered.

Fred Thies
May 3, 1988

(I02.cjs)

e. Any additional parameters deemed necessary by the department.

f. Routine annual water sampling. After the first year, one sample per year from each monitoring point collected in a quarter specified in the facility's operation permit must analyzed for the following parameters.

1. Total organic halogen.
2. Phenols.
3. Any additional parameters deemed necessary by the department.

103.2(5) Laboratory procedures.

The owner or operator of the solid waste facility must have the ground and surface water samples analyzed only by laboratories that are certified by the state of Iowa to perform public water supply sample analyses.

All analyses of parameters not covered in the Safe Drinking Water Act (SDWA) must be performed according to methods specified in SW-846 or approved by the United States Environmental Protection Agency. Any analytical method used on non-SDWA parameters deviating from those specified in SW-846 or approved by EPA must be approved by the department.

All analyses must be recorded on forms which, in addition to the analytical results, show the precision of the data set, bias, and limit of detection.

103.2(6) Analysis of sampling data. For each parameter analyzed during the first year of operation of the hydrologic monitoring system, as listed in paragraph 103.2(4)"d" above, determine the mean and standard deviation (~~see Appendix A, Mean and Standard Deviation Calculation~~) for each upgradient monitoring well using the first year of data. For routine quarterly monitoring parameters, as listed in paragraph 103.2(4)"e" above, mean and standard deviation should be recalculated annually using all available analytical data.

If the analytical results for a downgradient monitoring point do not fall within the control limits of two standard deviations above the mean parameter(s) level in a corresponding upgradient monitoring point, the owner or operator shall submit this information to the department within 30 days of receipt of the analytical results. If the analytical results from an upgradient monitoring point do not fall within two standard deviations of the mean parameter(s) level for that monitoring point, the department shall also be notified within 30 days.

103.2(7) Additional sampling. The department will determine if additional sampling is warranted, after receipt of information indicating a possible release as required in subparagraph 3. above. The department may require any additional samples to be split and analyzed to determine if the values obtained outside the control limits were the result of laboratory or sampling error. Any additional analytical results shall be submitted to the department by the owner or operator within seven days of receipt. The department will review the information and determine if additional monitoring or preparation of a groundwater quality assessment plan, in accordance with subsection 103.2(9), is necessary.

103.2(8) Record keeping and recording.

a. The persons conducting the sampling must record the procedures, measurements and observations at the time of sampling. The field records must be sufficient to document whether the procedures and requirements specified in the sampling protocol have been followed. The records must also contain the names of the persons conducting the sampling, the time and date each monitoring point was sampled, the required field measurement or test result. The owner or operator must submit copies of these field records to the department if requested.

Also to be included are maps showing location of soil borings, other field tests/measurements, and existing wells shall be provided.

567--110.6(455B) Evaluation of hydrogeologic conditions.

110.6(1) Based on soil boring and other available information, a description of the site geology shall be made. This shall include preparation of geologic cross sections of sufficient number and spacing (no fewer than four at every site) to adequately define all areas of the site and of sufficient detail to adequately depict major stratigraphic and structural trends and reflect geologic structural features in relation to groundwater flow. Each pair of cross sections must be as near to perpendicular as possible to adequately portray the site geology.

110.6(2) A description of the hydrogeologic unit(s) within the saturated zone shall be made including: thickness; depth, hydraulic properties, such as transmissivity and storage coefficient or specific yield; description of the role of each as confining bed, aquifer, or perched saturated zone, and their actual or potential use as water supply aquifers.

110.6(3) All groundwater flow paths from the site shall be identified, including both horizontal and vertical components of flow. A contour map of the water table shall be presented showing horizontal flow paths. A potentiometric surface map of the uppermost aquifer showing horizontal flow paths shall also be presented, if different than the water table. Vertical flow paths shall be shown in at least two profiles approximately parallel to the direction of horizontal flow. Vertical flow paths shall be determined by water level measurements from clustered wells at different depths, if possible. An evaluation of vertical groundwater flow based on the hydrologic properties of the various strata encountered at the site, estimated groundwater flow and recharge rates, and known information on hydraulic head shall also be made.

110.6(4) The seasonal, temporal and artificially induced variations in groundwater flow shall be evaluated. Temporal variations would occur due to natural events, such as rainfall. The addition of tilelines, removal of overburden, or deposition of wastes would constitute artificially induced variations.

110.6(5) Surface water flow paths from the site shall be identified on topographic contour maps.

567--110.7(455B) Monitoring system plan. A hydrologic monitoring system shall be designed to intercept the groundwater and surface water flow paths from the site. The plan shall include proposed locations and depths for monitoring wells in accordance with monitoring well siting criteria in subrule 567--110.1(2). Monitoring wells shall be designed in accordance with subrule 567--110.1(3).

The surface water monitoring plan shall include monitoring points on all standing and flowing bodies of water which will receive surface runoff and/or groundwater discharge from the site. For streams, sampling points upstream and downstream of areas of potential impact from the site should be selected.

567--110.8(455B) Sampling protocol.

At a minimum, the sampling protocol must include procedures or descriptions of the:

Order in which monitoring points are to be sampled, all tests and procedures needed at each monitoring point and the order in which these procedures will be carried out, equipment and containers to be used, procedures and

110.12(1) Sealing bore holes. Fill the bore hole by extending a tremie tube to the bottom of the hole. Apply bentonite or expanding cement grout through the tube to the bottom of the hole and raise the tremie tube as the hole is filled from the bottom upward. Keep the end of the tremie tube submerged in the grout while filling. Fill the bore hole from the base of the boring all the way to the ground surface.

110.12(2) Sealing abandoned monitoring wells.

a. Well is known to be constructed properly with impermeable grout that was installed from the bottom up using a tremie tube. Remove any existing protective metal casing by vertically pulling it off the well. Using a tremie tube, fill the inner well casing with an impermeable grout slurry from the bottom to ground surface. After 24 hours, retop the grout if it has settled below the existing ground surface.

b. Well construction is improper or undocumented. Attempt to remove the well casing. If this fails, either drill around the well casing using a hollow stem auger of large inside diameter or drill out the well casing using a standard casing bit or solid stem auger with a boring diameter greater than the initial diameter of the hole. Drill to the maximum depth of the previously drilled boring. Clean the drilling debris from the interior of the auger or bore hole. Seal the bore hole with an impermeable grout using a tremie tube. If the soil conditions permit the sealing to be conducted in a continuous operation, keep the tremie tube submerged in the grout at all times. After 24 hours, retop the grout if it has settled below the ground surface.

c. Monitoring wells in future fill areas. Remove well and seal as described in the procedures for sealing bore holes. Dig a pit around the well five feet below the ground surface or five feet below the base of the proposed landfill excavation, whichever is deeper. Fill the pit above the abandoned hole with compacted one foot (maximum) layers of clay which meets the downward leakage criteria (0.004 $ft.^3/day/ft.^2$).

110.13 Variance from design, construction, and operation standards. Pursuant to the authority of 455B.303 of the Iowa Code, a variance from the specific requirements of Chapter 110 may be issued, modified, or denied by the Director. The request should also include any supporting information to be considered by the Director in the formulation of his decision.

Date

Larry J. Wilson, Director

(EP100A.MIN/ec:125-88)

adverse human health and environmental effects. And fourth, if supported by risk assessment, corrective action. It is suggested that "monofills" be subject to less restrictive requirements than those proposed, as their physical and chemical nature is more uniform and in many instances very stable.

RESPONSE: The proposed rules do require quarterly monitoring for general water quality parameters. As proposed, the rules also allow for increased sampling and monitoring if judged necessary based on quarterly sampling results, but not necessarily involving all parameters of a standard expanded list. This addresses the first and second point.

The third and fourth points are not consistent with the statement of policy set out in the Ground Water Protection Bill, which requires prevention of contamination of the ground water from any source to the maximum extent practical. Risk assessment evaluates present uses of ground water and determines an acceptable level of contamination permissible relative to those uses without regard to potential future use.

Specific monitoring requirements for monofills may be proposed under subsequent rules.

RECOMMENDED ACTION: No change.

12. (1)(2)(7)(12) **COMMENTS:** Re: Section 103.2(1)1 (as amended) It is noted that the .004 ft/day/ft^2 downward leakage rate does not take into account time of travel and also that it now applies only to landfills accepting all types of solid wastes. Construction and demolition waste disposal sites should have less restrictive leakage and monitoring requirements than now proposed.

RESPONSE: We recognize and share the concerns cited by this comment. It is our intention to evaluate and modify design criteria for landfills in future rule revisions. When adequate information is obtained to allow a comprehensive effort in this regard, we will proceed.

RECOMMENDED ACTION: No change.

13. (1)(2)(5) **COMMENTS:** Re: Section 103.2(1)1.1 (as amended) The form of Darcy's Law is technically incorrect and contains non-standard or no longer current hydrogeological terminology. i.e.,

(per Regs) V=K [(h1-h2)/L]A/n
where, V=leakage rate, ft/day
K=hydraulic conductivity
h1-h2=head difference across the liner or geologic formation, ft
L=thickness of the liner or geologic formation
A=unit area, 1 sq.ft.

tube cannot be used in a standard penetration test. It is suggested that neither device may be effective under certain geologic conditions and should be required only when the material is retrievable.

RESPONSE: The objective is to obtain an undisturbed sample.

RECOMMENDED ACTION: Delete "with a split spoon or Shelby tube sampler" from the referenced section.

24. (1) **COMMENTS:** Re: Section 110.3(3)a (as proposed) The second sentence after the heading should apparently end with the word "site" in lieu of "state".

RESPONSE: The comment is correct.

RECOMMENDED ACTION: Change the reference to site.

25. (1) **COMMENTS:** Re: Section 110.4(1) (as proposed) Open bore holes should not be allowed for determining the water table level, as it can not be assured that the bottom of the well is not more than five foot below the water table prior to installing the finished well or piezometer. It is felt that 24 hours is insufficient to insure that stablilisation has occurred. It is suggested that several weeks or months may be necessary.

RESPONSE: The rule clearly requires that the water table elevation be determined. The reference to 24 hours is a minimum duration.

RECOMMENDED ACTION: No change.

26. (1)(2)(3)(4) **COMMENTS:** Re: Section 110,4(2) (as proposed) It is not clear if in-situ permeability and pump tests are to be required for cluster wells only or all monitoring wells. In high yield situations using small diameter wells the screen, gravel pack, and possibly the pump may be limiting factors. As such the test pumping rate should also be recorded. It is suggested that in low permeability soils pumping tests are not practical, with slug and bail test being a practical alternative to determine transmissivity in lieu of in-situ permeability. It is cautioned that the failure of pump tests to produce usable results is not an absolute indicator that ground water is absent or not moving. It is also noted that piezometers are not intended for use as sampling points or for permeability tests. It is also suggested that slug testing at a sampling point may interfere with sample results. It is recommended that the specific method for determining this information be developed by a qualified hydrogeologist based on site specific, laboratory data, and well construction methods.

RESPONSE: The requirement should have been stated as "and" rather than "and/or". Pumping tests are required on monitoring points located in the aquifer where permeabilities are expected to be sufficient to sustain the test. Recording the pumping rate is a generally accepted practice for this permeability.

Facility A

Description = 425 Tons/Day
100 Acres ≈ 1,720 × 2570

Wells = 16 Water Table
9 Aquifer
+

Surface Pts = 3

Total Sample Pts = 28

Costs

Construction (Wells)	=	$17,000
1st yr. Sampling	=	31,920
Subsequent Sampling (39 yrs)	=	371,280
Total 40 yr Cost	=	$420,200

110 | 48.0

111,550 | 49

Waste Rock

425 Tons/Day × 5 days/wk × 10 yrs = 1,105,000 Tons

Cost/Ton

$0.38

FY 1988 CONSTRUCTION GRANTS SERIES PROJECT PRIORITY LIST

CONSTRUCTION GRANTS FUNDING SUMMARY

STEP	PROJECT	ESTIMATED EPA GRANT ASSISTANCE *** FY 1988	FY 1989
3	Des Moines ICA (segmented)	16,281,970	9,325,500
3	Iowa City		4,599,980
4	Algona	1,088,390	
4	Chelsea */**		528,720
4	Randall *	378,340	
4	Waucoma *	371,030	
4	Parnell *	206,120	
4	St Olaf */**	176,490	
4	Harvey */**		336,870
4	Lineville *	782,150	
4	Dakota City **	222,420	
4	Glidden **	387,800	
4	Ricketts **	124,080	
4	Cumming */**		145,750
4	St Marys */**		295,680
4	Panama */**	242,880	
	FISCAL YEAR FUNDING ESTIMATE	$20,351,670	$15,232,490

FUNDING FOR PROJECTS IN THE AMOUNTS SHOWN IS BASED ON A FY 1989 ALLOTMENT OF $15,542,500 TO IOWA. VARIATION OF ACTUAL ALLOTMENTS FROM THIS ASSUMPTION MAY REQUIRE A REVISION OF THE LIST.

PROJECT STEP KEY

3 Construction

4 Combination grant for design and construction. Available only when the grant amount is less than $3 million, the project has not been segmented, and the population is under 25,000.

* Unsewered community
** Small community-alternative technology
*** Grant amount shown is the basic 55% (or 75%) grant. A project may also qualify for innovative bonus funding.

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (50) / Priority Points (80)	Applicant Legal Name / County Name / Street Address / City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (C2) / Auth/Fac. No. (32)	Grant Number Parent Project (B2)	Project Number (02, 01, 54) 03 - 0	Step (07) / Type (04)	St Cert (A5)	Proj Desc (20)	Sml Comm (33)	Innov Elig Cost (T7) / Altern Elig Cost (T8)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (Y0-Y6)	Inf Req
0005 [illegible].26	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 54 Amend 1	3	P 880630	T Segments 3C, 6, 7			21,709,300	16,281,970	I 21,709,300	AY
[illegible] [illegible].26	City of Ankeny Polk County 211 SW Walnut Ankeny IA 50021	IA7709001 MULTIPLES	C190709 10	C190790 08	3 C	P 881231	T Phase 2			2,290,000	1,717,500	I 2,290,000	AY
[illegible] [illegible].26	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001	C190709 10	C190709 56	3 C	P 881231	T Segments 5,6A			10,144,000	7,608,000	I 10,144,000	AY
0070 300.44	City of Iowa City Johnson County 410 E. Washington Iowa City IA 52240	IA5225001 190909001	C190830 01	C190830 05	3 C	P 881231	I			8,363,600	4,599,980	IVB 8,363,600	AY
0085 220.44	City of Algona Kossuth County 112-4 W Call Street Algona IA 50511	IA5603001 190015001	C190779 01	C190779 02	4 C	P 880930	T			1,978,900	1,088,390	I 1,978,900	AY
[illegible] 13.31	City of Chelsea Tama County City Hall Chelsea IA 52215	[illegible] 190145001		C191039 01	4 B	P 890331	T Coll	R	504,800	961,300	528,710	I 287,800 IVA 673,500	BY D

A:CG-FY89.FRM

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (80) / Priority Points (80)	Applicant Legal Name / County Name / Street Address / City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (C2) / Auth/Fac. No. (32)	Grant Number Parent Project (B2)	Project Number (02, 01, 54) 03 - 0	Step (07) / Type (04)	St Cert (A6)	Proj Desc (20)	Sml Comm (33)	Innov Elig Cost (T7) / Altern Elig Cost (V8)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (T0-T6)		Ref Req
[illegible] [illegible]0.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 61	3 C		I Westside			3,380,000	2,535,000	IVB	3,380,000	AY
[illegible] [illegible]0.24	City of Ankeny Polk County 211 SW Walnut Ankeny IA 50021	IA7709001 MULTIPLES	C190709 10	C190790 09	3 C		I Northeast			2,410,000	1,807,500	IVB	2,410,000	AY
0110 [illegible]0.24	City of Ankeny Polk County 211 SW Walnut Ankeny IA 50021	IA7709001 MULTIPLES	C190709 10	C190790 10	3 C		T Phase 3			3,160,000	2,370,000	I	3,160,000	AY
0120 [illegible]0.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 62	3 C		I, IIB Beaver Creek			3,520,000	2,640,000	IVB	3,520,000	AY
0130 [illegible]0.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 63	3 C		I Saylor Creek Phase 2			4,820,000	3,615,000	IVB	4,820,000	AY
0140 [illegible]0.24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	IA7727001 MULTIPLES	C190709 10	C190709 64	3 C		I Pleasant Hill			2,620,000	1,965,000	IVB	2,620,000	AY

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 5 Informational

Computer System Overview

During the past two years, a number of separate personal computer procurements have been presented for your review and approval. It is difficult to understand each procurement without having an understanding of the general picture regarding Data Processing and Personal Computers in the DNR. This item is being presented as an aid to understanding the direction the DNR has taken with regard to Data Processing and personal computers.

At the time of reorganization, IWAWM had a significant number of IBM personal computers and CPT word processors. The ICC had five NBI Personal Computers, and a variety of older IBM word processing equipment. The Energy Policy Council had small personal computers of various brands. The Geological Survey had several IBM P.C.'s and a scientific mini-computer.

Because the preponderance of equipment was IBM, the DNR decided to standardize on IBM as much as was reasonably possible. The NBI P.C.'s and the older word processing equipment was traded to other departments or discarded. The Word Processing Center was equipped with an IBM token ring network.

At the point of reorganization, the Director and the Division Administrators were all equipped with a computer terminal, or a personal computer which emulates a computer terminal. This enabled the use of the PROFS system, available on the State's mainframe, for communications, scheduling and document processing.

Through a variety of supplemental grants, the EPA has facilitated the procurement of a number of additional personal computers. These have been brought to the EPC for review and approval.

Currently, the DNR has sixty-nine IBM personal computers, twenty-nine other personal computers of various brands, a Perkin-Elmer mini-computer, and a numbers of computer terminals.

The DNR sees computers, both mainframe and P.C.'s, as a significant way to increase staff productivity. Much of the staff reduction as a result of reorganization has been compensated for with P.C.'s, and the PROFS system.

This view has recently been enforced by the Governor's office. In a meeting of department heads in February, the Governor strongly encouraged more and better use of automation as a means of increasing productivity. A State planning task force has been established to improve the use of automation in State government. DNR is represented on that planning task force.

The Governor also mandated that, at a minimum, each State department director be equipped with a computer terminal in order

Since its establishment in October of 1987, the Waste Management Authority Division has been initiating programs and fulfilling deadlines set out in the Waste Management Authority Act of 1987 (S.F. 396) and the Groundwater Protection Act of 1987 (H.F. 631). The organization and staffing of the Division are provided in Attachment A. The mission statement for the Division and a listing of the programs administered by the Division are provided in Attachment B. Each of the programs will be described in detail, including the requirements in law and the Division's activities in the past six months.

MONTHLY VARIANCE REPORT 4/30/88

No.	Facility	Program	Engineer	Subject	Decision	Date
1	Keystone, City of	Wastewater Const.	Crawford Engr.	Number of Aerated Cells	approved	04/13/88
2	Cherokee,City of(East)	Wastewater Oper.	[illegible].Bresicker,City Ad	Monitoring Frequency	denied	04/21/88

Page 3

The following administrative penalties were paid in April:

NAME/LOCATION	AMOUNT
City of Sidney	$ 250
City of Brighton	700
City of Tabor	250
Broadview Trailer Court (Dubuque)	1,000
Howard Bell, d/b/a Bell Ready Mix Cement	300
Timberline Assoc. Ltd. (W. Burlington)	1,000
City of Fairfield	1,000
Blackhawk Foundry & Machine Co. (Davenport)	1,000
The Meadows, Inc. (Moville)	125
Fred Iben (Monticello)	100
Benton County Care Facility	50
Hawkeye Motel & Reisch Auction Co. (Mason City)	50
The Hubinger Co. (Keokuk)	650
Hardin Co. SLF (Eldora)	250
Wayne, Ringgold & Decatur Co. SW Mgmt. Comm.	1,000
Sunrise Trailer Park (Cedar Rapids)	100
Pla-Mor Bowl (Iowa Falls)	50
Randy's Bluffton Store (Decorah)	50
TOTAL	$7,925

The penalties assessed to Otter Creek Station and Mike Vanderpool Construction were rescinded.

* Referred to the Attorney General
** On Payment Schedule

MPM:mjg

ENVIRONMENTAL PROTECTION COMMISSION [567]
Adopted Rule

Pursuant to Iowa Code section 455B.304, the Environmental Protection Commission adopts amendments to 567--Chapter 100, "Scope of Titles-Definitions-Forms-Rules of Practice" and 567--Chapter 103, "Sanitary Landfills," Iowa Administrative Code and part of a new 567--Chapter 110, "Design, Construction and Operation Standards for Solid Waste Management Facilities."

Notice of intended action was published in the Iowa Administrative Bulletin on December 2, 1987 as ARC 8188.

In accordance with Iowa Code section 455B.304, the Commission is required to adopt rules establishing standards for construction, operation and maintenance of hydrologic monitoring systems in sanitary landfills. In accordance with this authority, the Commission proposes to adopt amendments to existing rules in order to provide quantitative standards and methodology to be used by the landfill authority for applying these standards. These standards are to be applied to facilities which dispose of solid waste by burial.

The Department shall require submittal of all hydrologic monitoring system plans within a three-year period. Plans must be submitted for review within 120 days of receiving notice from the Department.

The Department proposes to give notice to facilities based on the following priority:

1. Facilities with leachate migration problems and/or minimal groundwater monitoring systems;
2. Facilities applying for a new permit or permit amendments which involve major lateral and/or vertical expansion;
3. With notice of permit expiration and prior to renewal.

These amendments may impact sanitary landfills economically and operationally.

Public hearings were held in Iowa City on January 6, 1988; in Council Bluffs on January 7, 1988; and in Des Moines on January 8, 1988 at which time oral and written comments were received. A written response has been prepared.

Numerous changes in the rule as it appeared in the Notice of Intended Action have been made in response to public comments.

These rules are intended to implement Iowa Code section 455B.304.

The following amendments are proposed:

ITEM 1. Amend rule 567--100.2(455B) by adding or substituting the following definitions in alphabetical order:

"Annular space" means the open space formed between the borehole and the well casing.

"Aquifer" means a saturated geologic formation or combination of formations which has appreciably greater ability to transmit water than do adjacent formations. Typically, an aquifer is capable of yielding usable quantities of water to a well.

"Confined aquifer" means an aquifer with a confining bed above and below. Water in a confined aquifer is under pressure such that water rises above the top of the aquifer in a well which penetrates the aquifer.

"Confining bed" means a geologic formation exhibiting relatively low ability to transmit water compared to adjacent formations. Confining beds are typically not capable of yielding usable quantities of water to a well.

"Down gradient" means direction of decreasing hydraulic head.

b. The owner or operator shall keep records of analyses and the associated groundwater surface elevations for the active life and postclosure period of the facility. These records shall be kept at the site or in the administrative files of the owner or operator, and shall be available for review in the county which the landfill is located by the department upon request.

c. The owner or operator shall provide the department with copies of the quarterly monitoring analytical results by the dates specified in the facility's operation permit.

d. An annual report summarizing the effect the facility is having on ground and surface water quality shall be submitted to the department by November 30 each year. The summary is to be prepared by an engineer registered in the state of Iowa and incorporated in the November semiannual engineer inspection report. The contents of this summary are to include the following items:

1. Amounts and kinds of wastes accepted under Special Waste Authorizations.

2. A narrative describing the effects the facility is having on surrounding surface and ground water quality and any changes made or maintenance needed in the monitoring network.

3. Graphs showing concentrations versus time for all monitoring parameters for each well for as long as records exist for that parameter. Control limits (-two standard deviations from the initial background value) must be shown on each graph.

4. Results of activities and tests required by the well maintenance and performance reevaluation plan described in paragraph 567--110.1(1)"b"5 shall be submitted to the department.

103.2(9) Groundwater quality assessment plan.

a. If leachate migration occurs and, as required by the department, the owner or operator shall develop and submit for approval a specific plan to conduct a ground water quality assessment study at the facility to determine the rate of migration and the extent and constituent composition of the leachate release. At a minimum, the assessment monitoring plan must contain the following elements:

1. Discussion of the hydrogeologic conditions at the site with an identification of potential contaminant pathways.

2. Description of the present detection monitoring system.

3. A description of the approach the owner or operator will take to substantiate any contention that the contamination may have been falsely indicated.

4. Description of the investigatory approach used to characterize the rate and extent of leachate migration.

5 Discussion of the number, location and depth of wells that will be initially installed as well as a strategy for installing more wells in subsequent investigatory phases.

6. Information on well design and construction.

7. Description of the sampling and analytical program used to obtain and analyze groundwater monitoring data.

8. Description of data collection and analysis procedures.

9. Schedule for the implementation of each phase of the assessment study.

b. After the plan has been approved by the department, the owner or operator shall implement the plan according to the schedule in the plan.

c. Within 30 days after the activities prescribed in the groundwater assessment plan have been completed, the owner or operator shall submit a written ground water quality assessment report to the department.

precautions for their use; precautions to avoid introducing contaminants from outside sources into monitoring wells or samples; and how equipment must be cleaned between uses.

Procedures for evacuating each monitoring well prior to each water quality sampling,

Procedures for handling field blanks and other quality assurance samples at the facility and in transit to and from the laboratory,

Procedures for field filtration of samples, if required,

Procedures for sample preservation,

Procedures for sample collection, labeling and handling at the facility and during transport to the laboratory,

Procedures for recording field observations and measurements,

Procedures for records maintenance and data analysis, and

Procedures for sampling surface water monitoring points including exact sampling locations and depths. 567--110.9(455B) Monitoring well maintenance performance reevaluation plan.

110.9(1) A monitoring well performance reevaluation plan shall be included as part of the hydrogeologic monitoring system plan. The plan shall ensure that all monitoring points remain reliable.

110.9(2) The plan shall include the following items:

a. Every two years an examination of high and low water levels accompanied by a discussion of the acceptability of well location (vertically and horizontally) and exposure of the screened interval to the atmosphere.

b. A biannual evaluation of water level conditions in the monitoring wells to ensure the effects of waste disposal or well operation have not resulted in changes in the hydrologic setting and resultant flow paths.

c. Annually conducting well depth measurements to ensure wells are physically intact and not filling with sediment.

d. Every five years conducting in-situ permeability tests on monitoring wells; comparing test data with those collected originally to determine if well deterioration is occurring.

567--110.10(455B) Monitoring well siting requirements.

110.10(1) Downgradient monitoring wells. Downgradient monitoring wells must be located to provide a high level of certainty that releases of contaminants from the site can be promptly detected. Downgradient monitoring wells should be placed along the site perimeter, within 50 feet of the planned liner or waste boundary unless site conditions dictate otherwise, downgradient of the facility with respect to the hydrologic unit being monitored. For those facilities which are long-term, multi-phase operations, the department may establish temporary waste boundaries in order to define locations for monitoring wells.

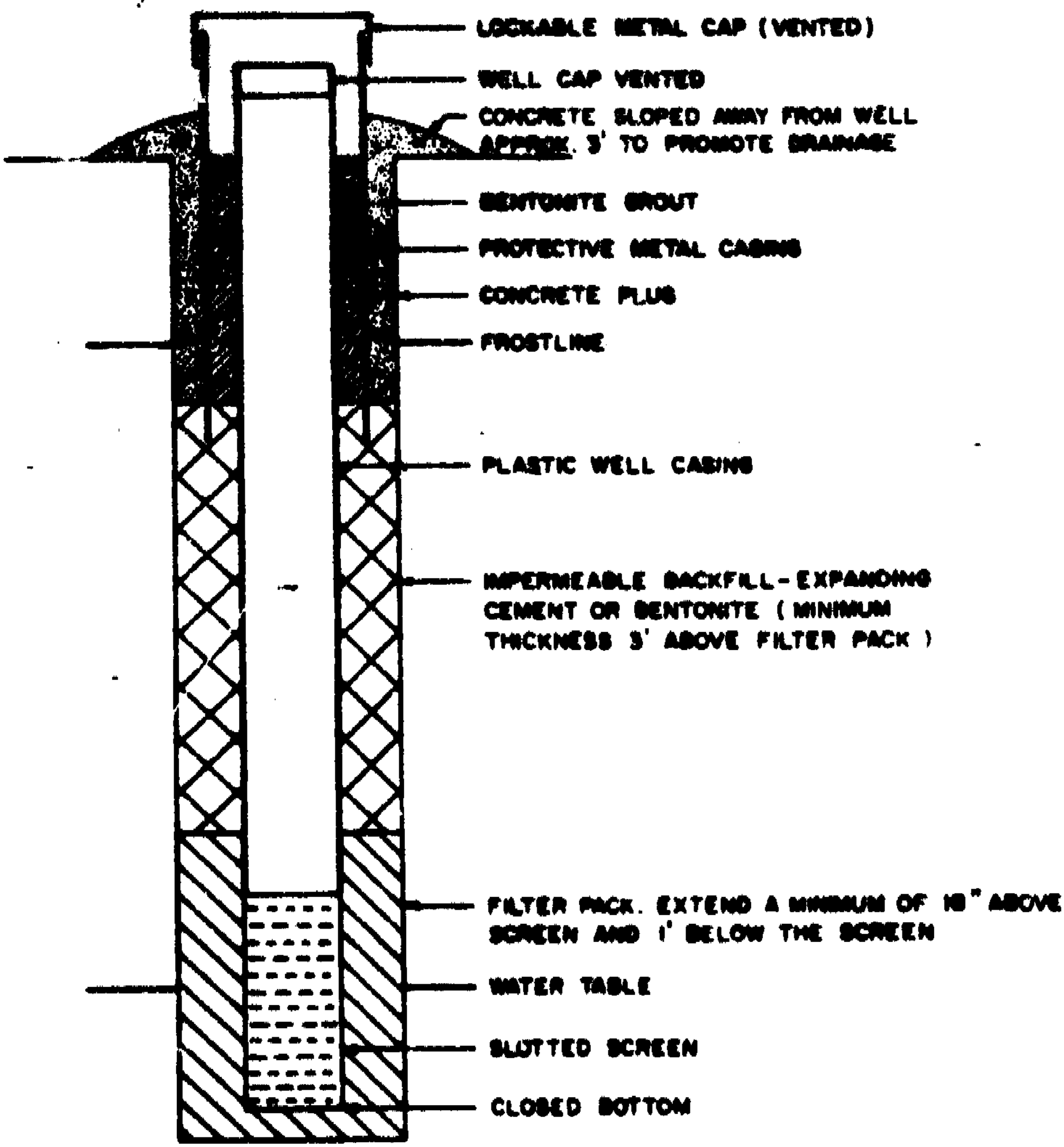
110.10(2) Water table wells. At least three downgradient water table monitoring wells shall be installed at each facility. The maximum spacing between wells shall be 300 feet.

110.10(3) Uppermost aquifer monitoring wells. If different than water table monitoring wells, at least three uppermost aquifer monitoring wells shall be installed at each facility. Uppermost aquifer monitoring wells shall be spaced no more than 600 feet apart. If the uppermost aquifer is located more than 50 feet below the water table, this requirement may be relaxed, although at least one downgradient uppermost aquifer monitoring well will be required.

110.10(4) Other downgradient monitoring wells. Additional downgradient monitoring wells will be required if the water table and uppermost aquifer

FIGURE 1

TYPICAL MONITORING WELL CROSS SECTION



PLASTIC CASED WELL CONSTRUCTION DETAILS

—NOT TO SCALE—

n=porosity

(per Crane, et al) Q=K[(h2-h1)/L]A

where, Q=cubic feet of liquid per day per square foot

K=vertical hydraulic conductivity of the most restrictive soil unit below the base of the fill, ft/day

h2=maximum water table elevation affecting downward leakage

h1=lowest elevation of most restrictive soil unit

L=minimum thickness of most restrictive soil unit

A=unit area, sq.ft

Also would permeability of synthetic liners be given a value of "zero".

RESPONSE: The equation as shown in the proposed rule is unchanged in form from the existing rule. There appears to be come disagreement as to what form may be more correct and the question of synthetic liners was not considered when the equation was originally incorporated into the rule. We would propose to take up both questions in the near future in subsequent rule making activities for implementation of the Ground Water Protection Bill.

RECOMMENDED ACTION: No change.

14. (1)(2)(3)(5)(6) **COMMENTS:** Re: Section 103.2(3) (as amended) Implementation of the approved monitoring plan within 60 days of such approval is unrealistically short under winter conditions. Also the lead time after notification should be increased from 90 to 120 days. It is recommended that notification be made based on a site specific prioritization system.

RESPONSE: We acknowledge seasonal and possibly budgeting complications which could prevent compliance with the 90-day planning and 60-day implementation requirements.

RECOMMENDED ACTION: Change to allow 120 days for plan preparation and 90 days for implementation.

15. (1)(2)(3)(5)(6) **COMMENTS:** Re: Section 103.2(4) (as amended) As proposed, none of the baseline parameters are duplicated in the quarterly monitoring. It is felt that common parameters must appear in both lists. The value of the baseline data is questionable as it is believed that 4 quarterly samples constitutes an insufficient data base. It is felt that baseline sampling and monitoring should be eliminated altogether. The first year sampling list includes parameters more suitable to assessing potable and surface water quality, than representing the most common and transmissible constituents of leachate. It is recommended that the listed organic compounds be replaced with TOC and TOX and that vinyl

RECOMMENDED ACTION: Change the reference from "and/or" to "and" in the first sentence.

27. (2) COMMENTS: Re: Section 110.5 (as proposed) The inventory of abandoned and unused wells is considered unachievable and should be eliminated.

RESPONSE: We acknowledge the difficulty associated with this task. However, we feel that the information is of value if attainable.

RECOMMENDED ACTION: Change the phrase to read as follows: a reasonable effort to inventory all active, unused, and abandoned wells within one mile....

28. (2) COMMENTS: Re: Section 110.6(2) (as proposed) It is felt that the list of items described is inappropriate based on the data collected. If the borings are performed as required, in some instances thickness and depth of the aquifer may not be known.

RESPONSE: The data should be collected so as to provide a proper hydrogeologic description of the site. That is the entire point of this exercise. Obviously, data beyond the minimum requirements may be needed. This is why the requirements are minimum.

RECOMMENDED ACTION: No change.

29. (2) COMMENTS: Re: Section 110.7 (as proposed) It is suggested that a definition for "ground water runoff" be provided. If ground water underlying the site intercepts a river several miles downstream, the appropriateness of the surface water samples is questioned.

RESPONSE: This is an obscure reference and should be replaced by the term ground water discharge.

RECOMMENDED ACTION: Delete the term "ground water runoff" and insert the term "ground water discharge" in the referenced section.

30. (4) COMMENTS: Section 110.8 (as proposed) It is suggested that an additional procedure be required to describe the collection of representative samples from the monitoring wells for volatile organic compounds that may stratify because of density variations.

RESPONSE: This point should be properly addressed by sample collection or preservation as described within the protocol required to be submitted.

RECOMMENDED ACTION: No change.

31. (1)(2) COMMENTS: Re: Section 110.9(2) (as proposed) It is suggested that the term biannual be replaced with the term biennial if it is

Facility B

Description = 1,170 Tons/day
400 Acres ≈ 3,450' × 5,280'

Wells = 30 Water Table
16 Aquifer
+
Surface Pts = 3

Total Sample Pts = 49

Costs

.304
3000 / 87.000

Construction (wells) = $31,000
1st yr Sampling = 55,860
SubseQuent Sampling = 699,740
(39 yrs)

Total 40 yr Cost = $786,600

Waste Base

1,170 Ton/day × 5 days/wk × 10 yrs = 3,042,000 Tons

Cost / Ton

$0.25

FY 1988 SUMMARY OF FUNDS

I. Estimated EPA Assistance Required

A. Estimated assistance for projects			$35,584,160
B. Designated reserve for grant increases			3,536,708
C. Reserve for grant increases for alternative technology	FY 1988	$1,017,089	
	FY 1989	$ 543,988	1,561,077
D. Reserve for grant increases for innovative technology	FY 1987	$ 89,643	
	FY 1988	$ 155,425	
	FY 1989	$ 77,713	322,781
E. Reserve for state management assistance 205(g)	FY 1987	$1,314,048	
	FY 1988	$1,314,048	
	FY 1989	$ 657,024	3,285,120
F. Reserve for water quality management 205(j)(1)	FY 1988	$ 310,850	
	FY 1989	$ 155,425	466,275
G. Reserve for non-point source management 205(j)(5)	FY 1988	$ 310,850	
	FY 1989	$ 155,425	466,275
H. Reserve for advances of allowances (no need projected FY 1988)			________
Total grant needs			$45,222,396

II. Non-additive Set-Aside Reserve Funds

A. Reserve for alternative systems for small communities	FY 1988	$1,243,400
	FY 1989	$ 621,700
		$1,865,100
B. Quota for unsewered communities	FY 1988	$1,554,250
	FY 1989	$ 777,125
		$2,331,375

III. Available Funds

A. FY 73-86 Carryover (5/01/88)	$ 115,096
B. FY 1987 Allotment Balance (5/01/88)	1,414,043
C. FY 1988 Allotment Balance (5/01/88)	28,150,757
D. Anticipated FY 1989 Allotment	15,542,500
	________
	$45,222,396

A:CG-FY89.FUN

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (500) Priority Points (480)	Applicant Legal Name County Name Street Address City, State Zip Code (12, 15, 51, 14, 13, 52)	Permit Number (422) Auth/Fac. No. (32)	Grant Number Parent Project (02)	Project Number (02, 01, 54) 03 - 0	Step (07) Type (04)	St Cert (45)	Proj Desc (20)	Bal Comm (33)	Innov Elig Cost (77) Altern Elig Cost (78)	Total Eligible Cost (29)	Est EPA Assist (19)	Elig Cost by Needs Cat (70-76)		Ref Req
0645 7.17	City of Randall Hamilton County Box 36 Randall IA 50231	[redacted] 190716001	C190716 01	C190716 02	4 C	P 880930	I Coll			687,980	378,340	IVA IVB	376,880 311,100	D BT
0725 2.16	City of Waucoma Fayette County R R 2 Box 29 Waucoma IA 52171	[redacted] 190025001	C191287 01	C191287 02	4 C	P 880930	T Coll			674,600	371,030	I IVA	247,800 426,800	BT D
0795 1.66	City of Parnell Iowa County Box 15 Parnell IA 52325	[redacted] 190640001		C191314 01	4 N	P 880531	T Coll	R	— 27,028	538,400	296,120	I IVA	187,148 351,252	BT D
0805 1.00	City of St Olaf Clayton County City Hall St Olaf IA 52072	[redacted] 190760002		C191309 01	4 N	P 880930	T Coll	R	— 178,100	320,900	176,490	I IVA	158,100 162,800	BT D
0860 1.50	City of Harvey Marion County Main Street Harvey IA 50119	[redacted] 190029001		C191308 01	4 N	P 890331	T Coll	R	— 485,000	612,500	336,870	I IVA	199,000 413,500	BT D
1085 .738	City of Lineville Wayne County Box 187 Lineville IA 50147	[redacted] 190083001	191280 01	C191280 02	4 C	P 880930	T Coll			1,422,100	782,150	I IVA	455,100 967,000	BT D

FISCAL YEAR 1980

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST

State: Iowa
EPA Region: 07

Priority Rank (30) / Priority Points (31)	Applicant Legal Name / County Name / Street Address / City, State Zip Code (12, 15, 51, 14, 13, 50)	Permit Number (62) / Auth/Fac. Nr. (32)	Grant Number Parent Project (02)	Project Number (08, 01, 54) 00 - 0	Step (07) / Type (04)	St Cert (35)	Proj Desc (20)	Bal Conn (33)	Innov Elig Cost (77) / Altern Elig Cost (18)	Total Eligible Cost (29)	Est. EPA Amount (19)	Elig Cost by Needs Cat (70-76)	Ref Req
[illegible] [illegible].24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	[illegible] [illegible]	C190000 10	C190000 05	3 C		I Four Mile Main Dr			6,500,000	4,905,500	IVB 6,500,000	[illegible]
[illegible] [illegible].24	City of Des Moines Polk County East First & Locust Des Moines IA 50307	[illegible] [illegible]	C190000 10	C190000 06	3 C		I, IIB Highland Hills Phase 2			2,640,000	1,980,000	IVB 2,640,000	[illegible]
[illegible] [illegible].44	City of Iowa City Johnson County 410 E Washington Iowa City IA 52240	[illegible]	C190000 0[illegible]	C190000 06	3 C		I			5,000,000	2,750,000	IVB 5,000,000	[illegible]

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST
DISCHARGER RANKING

Points	Project	Points	Project	Points	Project	Points	Project
254.28	Marshalltown	18.80	Colfax	8.24	Danville	3.02	Bennett
254.11	Nevada	18.75	Sumner	7.59	Blairstown	2.94	Anamosa
190.88	Iowa Falls	17.90	Corning	7.56	Anita	2.75	Low Moor
147.27	Winterset	17.71	Dyersville	7.06	Dunlap	2.51	Preston
136.09	Hampton	16.60	Dows	7.05	Dumont	2.50	Lake Park
119.41	Albia	14.53	Conrad	6.72	Grinnell	2.10	West Chester*
43.37	Adel	12.82	Wheatland	6.60	Marengo	1.99	Milo
42.26	Durant	12.09	Onawa	5.18	Wyoming	1.81	Decatur City*
38.14	Cedar Falls	11.16	Goldfield	4.73	Denver	1.77	Fenton*
36.36	Humboldt	10.92	Martensdale	4.05	Kiron	1.75	Madrid
36.08	Waterloo	10.79	Woodbine	4.02	Oakland	1.75	Joice*
35.95	Gladbrook	9.96	Missouri Valley	3.93	Wellman	1.68	Haverhill*
30.23	Carlisle	9.78	Ely	3.60	Millersburg*	1.65	Lone Rock*
29.26	Sully	8.44	Lamoni	3.35	Ferguson*	58	Moorland*
23.97	Stacyville	8.40	Jesup	3.25	Graettinger	1.57	Monticello
18.96	Victor	8.38	West Point	3.19	Clear Lake SSD	1.54	Luxemburg*

* Unsewered Community

1988 WATER QUALITY REPORT

TABLE OF CONTENTS

surface water. Soil conservation cost share programs, as well as conservation education, were stressed. Since 1979, substantial progress in soil conservation programs and reducing nonpoint pollution of some Iowa lakes has been made. The last update of Iowa's nonpoint source control strategy was completed in December, 1986, although this revision failed to address groundwater impacts from nonpoint pollution. A detailed nonpoint assessment report has recently been completed and will lead to the development of revised state nonpoint source management programs.

DNR has adopted regulations to control pollution from animal feeding operations. Rules require that land disposal of animal wastes be accomplished in a manner that does not cause surface or groundwater pollution.

Likewise, land disposal of wastes by either land application and/or burial in landfills is regulated throughout the state. Landfills are subject to specific siting, design, and operation criteria as well as annual DNR inspections, permit renewals every three years, and monitoring requirements.

Flood plain construction activities are regulated by DNR to limit impact on soil erosion, aquatic life, and the existing environment. The DNR also participates in the Corps of Engineers Section 404 permit program by issuing 401 water quality certifications for projects.

As previously noted, the 1987 Groundwater Protection Act combines regulatory and nonregulatory approaches to protect Iowa's groundwater sources. This law includes provisions relating to pesticide and fertilizer sales, as well as improved management practices relating to specific environmental concerns: solid waste disposal, underground storage tanks, agricultural drainage wells, and sinkholes.

STATE PROGRAM COSTS

A large part of DNR's Environmental Protection Division budget is used to support water and wastewater programs throughout the state. In addition, several other agencies make significant contributions to Iowa's water and wastewater quality control programs.

Federal and state construction grant funds are distributed by DNR to help Iowa communities plan and construct needed wastewater treatment facilities. The phasing out of the Federal Construction Grant Program and initiation of a state revolving fund may affect this program area.

SURFACE WATER MONITORING PROGRAM

Since the 1970's, the DNR has collected data from fixed-station water quality monitoring sites, DNR-sponsored special studies, and from other agencies' data bases. Toxics monitoring in surface water has included monitoring for metals, ammonia, and total residual chlorine. Monitoring of pesticides in surface waters was completed at 10 stations across Iowa.

Fish tissue monitoring has been conducted to monitor for selected toxics that

[1] - Water Quality Standards Classifications:

Class A - waters protected for primary contact water use.

Class B - waters protected for wildlife, fish, aquatic and semiaquatic life and secondary contact water use.

Class C - waters protected as a raw water source of potable water supply.

General - all surface waters, including Class A, B and C waters, potential for livestock and wildlife watering, aquatic life, noncontact recreation, crop irrigation, and industrial, domestic, agricultural and other incidental water withdrawal uses not protected by Class A, B or C criteria.

HQ - High Quality Waters - to be maintained at or above existing quality, except when, after full satisfaction of the intergovernmental coordination and public participation provisions of the continuing planning process, it is determined that there is need to lower the chemical quality because of necessary and justifiable economic or social development. In allowing such degradation or lower chemical quality, the state shall assure adequate chemical quality to fully protect existing uses.

HQR - High Quality Resource Waters - Water quality management regulatory actions will be directed at water quality improvement commansurate with the exceptional value of the resource and at preserving and enhancing the physical and biological integrity of these waters.

[4] - There are no unclassified surface waters in Iowa. All surface waters not specifically classified as Class A, B, C, HQ or HQR in the Iowa Water Quality Standards are protected by the general water quality criteria. A specific classification has not been developed to cover the agricultural, industrial or navigable uses. Therefore, these uses are covered by the general water quality standards and are listed as such in Table 2-2. Waters being used for agricultural, industrial or navigable uses may also be covered by other classifications.

TABLE 3-2 MILES OF IOWA STREAMS SUPPORTING DESIGNATED USES

Status of Use Support	Assessment Basis		Total Assessed	Percent of Total
	Evaluated	Monitored		
Miles Fully Supporting	69	0	69	0.8
miles threatened *	69	0	69	
Miles partially supporting	6,061	442	6,503	79
Miles not supporting	33	1,630	1,663	20.2
Total	6,163	2,072	8,235	

* Miles threatened is a subset of the miles fully supporting and is not included in the totals entered in the last line.

TABLE 3-3 ACRES OF IOWA LAKES SUPPORTING DESIGNATED USES

Status of Use Support	Assessment Basis		Total Assessed	Percent of Total
	Evaluated	Monitored		
Acres Fully Supporting	26,801	0	26,801	55.2
acres threatened *	18,902	0	18,902	
Acres partially supporting	20,358	0	20,358	41.9
Acres not supporting	1,390	0	1,390	2.8
Total	48,549	0	48,549	

* Acres threatened is a subset of the acres fully supporting and is not included in the totals entered in the last line.

Figure 3-1-b. Iowa stream segments assessed from October 1985 through September, 1987 as partially supporting designated uses.

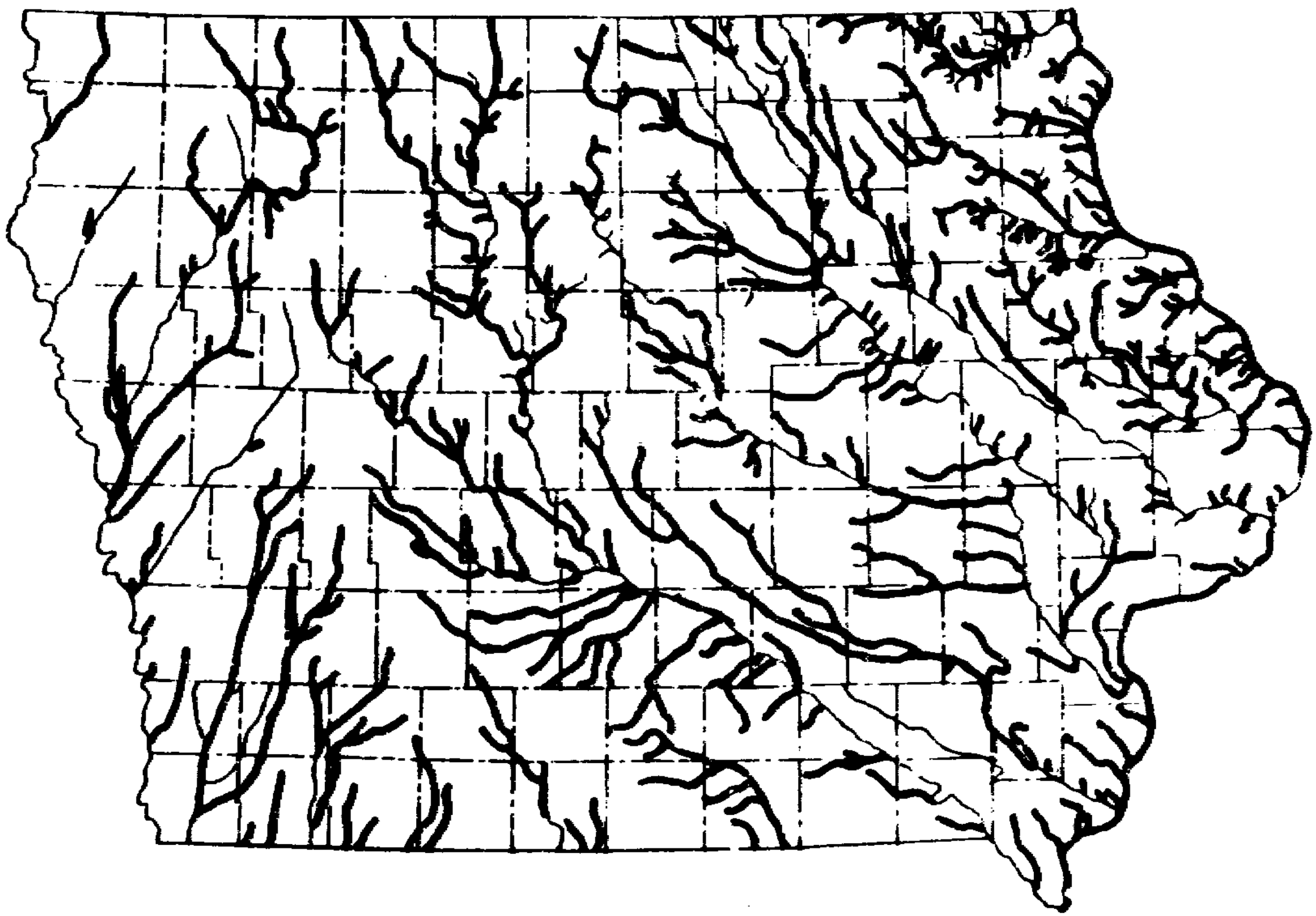
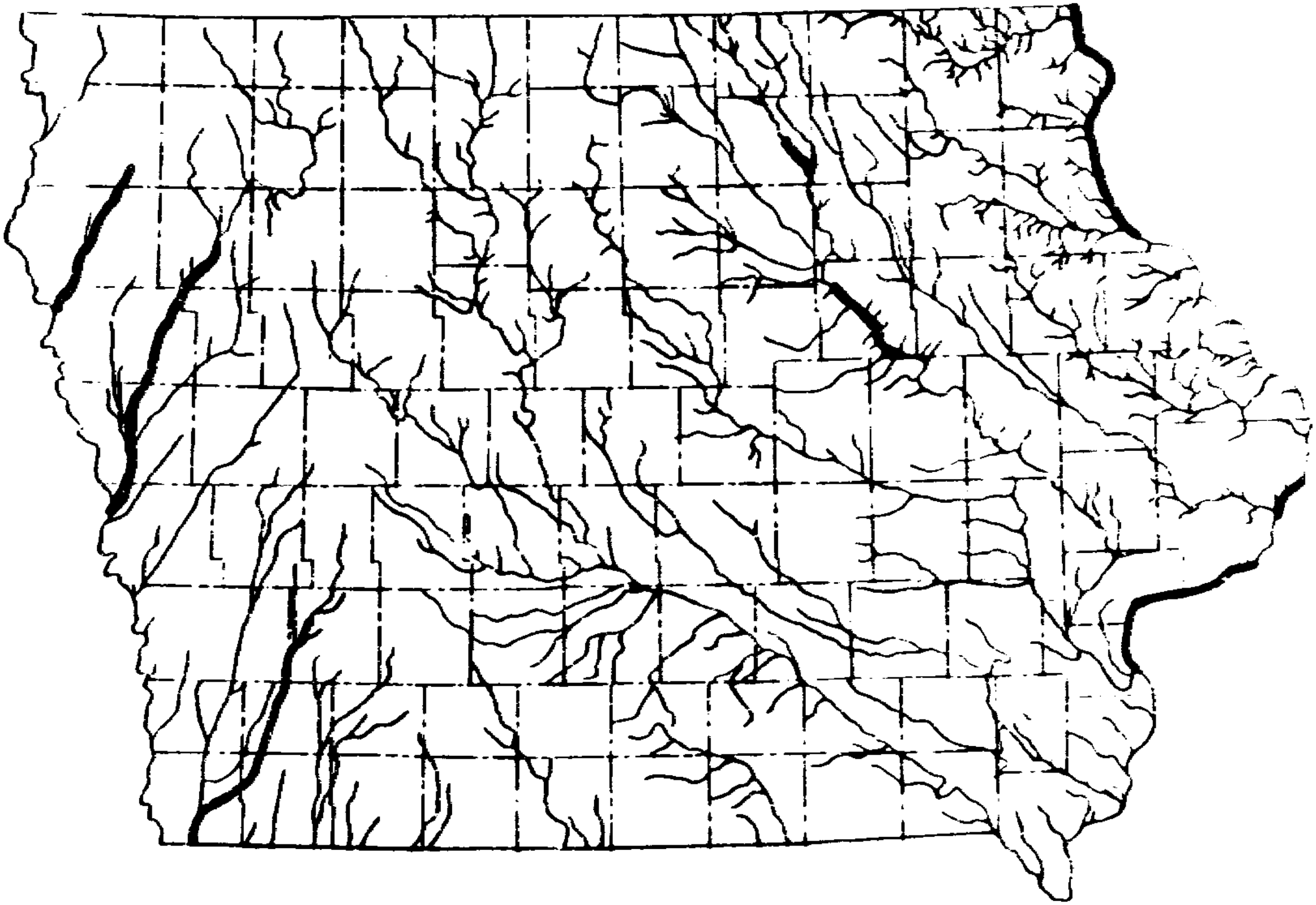
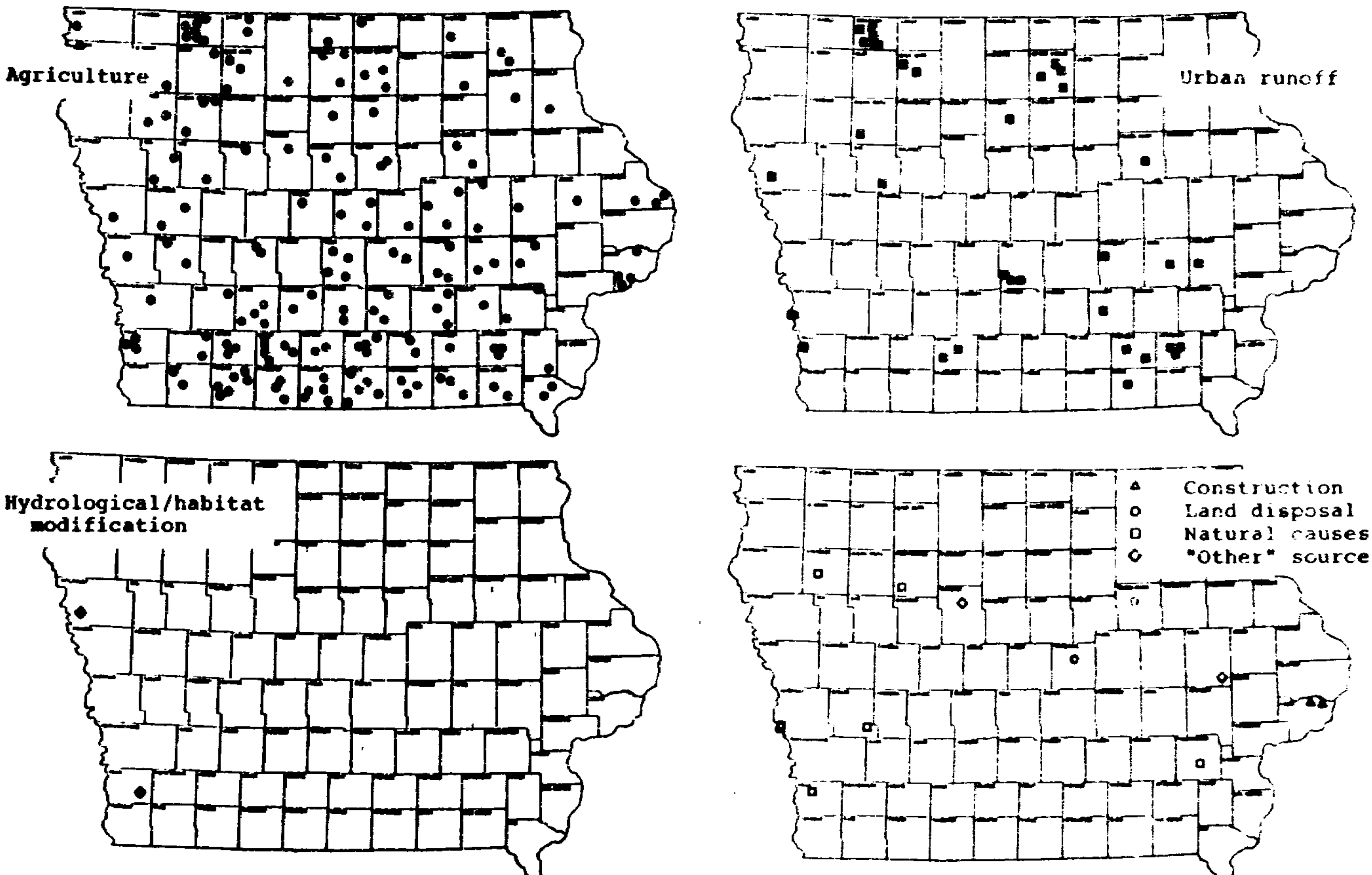


Figure 3-5. Iowa stream segments assessed as having impacts due to discharges from industrial wastewater treatment facilities*.



*Sources shown are for all waters in which use evaluation was determined to be fully supporting/threatened, partially supporting, or not supporting.

Figure 3-10. Sources of impacts on Iowa lakes assessed from October, 1985 through September, 1987*.



*Sources shown are for all waters in which use evaluation was determined to be fully supporting/threatened, partially supporting, or not supporting.

PRIORITY ORGANICS

Priority organics were identified as major impacts on 156 miles (1.9 percent) and identified as moderate/minor impacts on 39 miles (0.5 percent) of the stream miles assessed as not fully supporting designated uses. Common sources of these compounds include land disposal, industrial point sources, and urban runoff.

Polychlorinated biphenyls (PCB's) were identified as causing a major impact on approximately 116 miles of the 156 miles with major impacts due to priority organics. PCB's were found in samples of fish fillets analyzed for toxic compounds from several areas throughout the state. These areas are the West Nishnabotna River near Harlan, the Upper Iowa River in Allamakee County, and the Mississippi River near Davenport and Guttenberg. In general, these locations are near either industrial centers or the Mississippi River. Fish samples from the Mississippi River typically contain PCB's (MPCA, 1985) attributed to industrial activity along the river.

A segment of the Iowa River near Iowa Falls was assessed as impacted by toxic organic compounds from an abandoned coal gasification facility. Samples of fish fillets were collected from this area in 1987. The results of fish tissue analysis will be available in mid-1988 and should help define this contamination problem.

IMPAIRMENTS DUE TO NAVIGATION

The 316 miles of the upper Mississippi River that border Iowa were assessed as having moderate/minor impacts due to use for commercial navigation. Impairments to designated use from navigation include presence of the system of locks and dams, channel dredging, and barge fleeting activities.

The Mississippi River, from St. Louis, Missouri, north to Minneapolis, Minnesota, is a series of pools created by 25 locks and dams. Seven locks and dams exist along the Iowa portion of the river. Dredging is conducted to maintain sufficient depth in the navigation channel. The presence of the locks and dams and dredging has altered the physical characteristics of the upper Mississippi River. Barge fleeting can impact shoreline areas and can result in additions of pollutants to the river.

2. LAKES

Nutrients and siltation, both attributed primarily to agricultural nonpoint sources, were identified as major impacts on 18 and 30 percent respectively, of the lake acres assessed as not fully supporting designated uses. Oil and grease from urban runoff and recreational boating was identified as the moderate/minor impact on be underreported.

OIL AND GREASE

Red Rock Reservoir was the only reservoir assessed as having impacts due to oil and grease. Urban runoff from the Des Moines metropolitan area was identified as a major impact to its water quality. Red Rock Reservoir is the only flood control reservoir in Iowa located immediately downstream from a major metropolitan area, and thus is susceptible to water quality impacts from urban-related point and nonpoint sources.

TABLE 3-12

Causes and sources of impacts on water quality of wetlands in Iowa assessed as not fully supporting uses for the period October 1985 through September 1987. Percentages of the total wetland acres assessed (26192) are included in parentheses.

Cause Categories	Wetland Acres With Impacts: Major Impact	Moderate/minor Impact	Total
Unknown toxicity	0	1000 (3.8%)	1000 (3.8%)
Pesticides	0	10050 (38.4%)	10050 (38.4%)
Ammonia	109 (<1%)	0	109 (<1%)
Nutrients	2305 (8.8%)	10153 (38.8%)	12458 (47.6%)
Siltation	13956 (53.3%)	1345 (5.1%)	15301 (58.4%)
Organic enrichment	0	570 (2.2%)	570 (2.2%)
Other habitat alterations	4006 (15.3%)	0	4006 (15.3%)

Source Categories	Wetland Acres With Impacts: Major Impact	Moderate/minor Impact	Total
Nonpoint sources			
Agriculture	16111 (61.5%)	0	16111 (61.5%)
Urban runoff	0	570 (2.2%)	570 (2.2%)
Land disposal	0	1000 (3.8%)	1000 (3.8%)
Hydrological modification	4006 (15.3%)	0	4006 (15.3%)

these high levels has generally shown relatively low levels of toxics. Thus, advisories or bans have not been justified.

The only fishing advisory in Iowa exists at Cedar Lake in Cedar Rapids. This advisory was established in March 1986 due to levels of chlordane in samples of fish fillets that exceeded the FDA action level (see Kennedy and Splinter, 1985). This is a privately owned urban impoundment, and the advisory was established by the owner in cooperation with the city of Cedar Rapids, the Linn County Department of Health, and the DNR.

A recent report (U.S. EPA, 1987b) indicating high levels of PCB's in fish from the Mississippi River near Davenport is under review. The DNR, in cooperation with the US EPA and the U.S. Fish and Wildlife Service, will determine the appropriate response to this contamination problem.

FISH KILLS

Of the 45 fish kills reported from October, 1985 through September, 1987 (Table 3-15), approximately one-half were attributed to either unknown causes or naturally occurring conditions (e.g., low levels of dissolved oxygen and/or high water temperature). Toxics were identified as the cause for 10 of the fish kills. Eight of these toxic-related kills were attributed, either partially or entirely, to ammonia. Other toxics contributing to or causing fish kills were pH, sodium hydroxide, pesticides, zinc, and chlorine. Additional reported causes of fish kills included winter kill, disease, hog confinement discharge, and industrial discharge.

The fish kills reported in Table 3-15 are those that have been investigated by the DNR. Many fish kills are not reported to the DNR, and thus the number reported probably underestimates the number of kills that has actually occurred over the last two years.

SEDIMENT CONTAMINATION

The DNR does not monitor sediments for toxic contamination as part of routine fixed station monitoring. Limited analysis of sediments has been conducted as part of special studies (e.g., Kennedy and Splinter, 1984, Kennedy and Miller, 1987). Data from these studies are too limited to allow generalizations regarding sediment contamination in Iowa.

CLOSURE OF SURFACE DRINKING WATER SUPPLIES

No surface drinking water supplies have been closed by the DNR due to toxic contamination.

2. NONTOXICS CONCERNS

CLOSURES OF BATHING AREAS

No incidents resulting in closure of bathing areas by the DNR, nor by the Department of Public Health, occurred during the time period covered by this report.

INCIDENTS OF WATERBORNE DISEASE

Investigations conducted by the DNR and/or the Iowa Department of Public Health of human health problems potentially related to waterborne pathogens resulted in no positive findings.

CLOSURE OF SURFACE DRINKING WATER SUPPLIES

No surface drinking water supplies have been closed by the DNR due to contamination by nontoxics.

E. LAKE INFORMATION

Appendix C details information required by Section 314 of the Clean Water Act as described in the 305(b) guidance. Discussion of sources and extent of use impairment may be found in Section 3.C of this report.

F. NONPOINT SOURCE INFORMATION

Waterbody specific information, as outlined in Section 3.F of the 305(b) guidance, may be found in the separate report "Nonpoint Source Assessment Results." Discussion of nonpoint impacts is also included in Section 3.C. of this report.

G. ESTUARY INFORMATION

There are no estuaries in the State of Iowa.

H. WATERBODY-SPECIFIC INFORMATION

1. SURFACE WATER QUALITY ASSESSMENT

The water quality of each surface waterbody in Iowa was assessed to determine the degree to which any designated use is supported or impaired. Stream segments and lakes, as defined in the State Water Quality Standards, were used as units for the assessment. Stream waterbodies were defined by identifying their major river basin, and subbasin, segment number, stream name, description, length and designated uses. Likewise, lakes were described according to county

SECTION 4. GROUNDWATER QUALITY

A. OVERVIEW

A general summary of Iowa's natural groundwater quality is contained in the following section. This section is followed by a brief discussion of potential sources of groundwater contamination and corresponding issues of concern. A detailed discussion of the above topics may be found in the Iowa Groundwater Protection Strategy, (DNR, 1987b), and the Nonpoint Assessment Report, (DNR, 1988)

1. Groundwater withdrawals account for nearly 65% of the total water use in Iowa, with approximately 80% of all Iowa's drinking water coming from groundwater sources. Natural groundwater quality varies considerably in Iowa depending on the formation from which the water is being withdrawn and the depth of the aquifer

Shallow alluvial aquifers, associated with major Iowa rivers, tend to supply the best natural quality drinking water. These aquifers supply large quantities of drinking water containing less than 500 mg/l of dissolved inorganic ions. Deep bedrock aquifers, found in northeast Iowa, also yield good natural quality drinking water, relatively low in dissolved solids and high in yield. Drift aquifers located throughout the state tend to vary in both natural quality and quantity of water available. These aquifers are the most infrequently tapped as a primary water source by Iowa municipalities, though rural residents rely heavily on drift aquifers for drinking water supplies. Upper bedrock aquifers of northwest Iowa offer fair quality drinking water with variable yields. Dissolved solids usually are than 1500 mg/l, better than the bedrock water quality of southern Iowa (greater than or equal to 1500 mg/l dissolved solids), yet somewhat more than desirable.

Together, shallow alluvial and deep bedrock aquifers supply about 60 percent of Iowa's population with drinking water. Naturally occurring constituents of these water sources can present potential hazards in themselves. Radioactivity is a naturally occurring contaminant in the groundwater of deep bedrock aquifers throughout the state. The natural radioactivity is trapped in the deep rocks where the water is stored and may be detected in the water at levels exceeding the drinking water standards, especially in central and southeast Iowa.

2. Major groundwater issues of concern center around human activities and resultant groundwater contamination of Iowa's aquifers. Threats to Iowa groundwater quality include: agricultural chemicals, landfills, underground storage tanks, agricultural drainage wells, livestock wastes, and improper management of hazardous substances. A discussion of each of these concerns is presented in the Iowa Groundwater Protection Strategy, (DNR, 1987b) and the Nonpoint Assessment Report, (DNR, 1988).

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST
DISCHARGER RANKING

Points	Project	Points	Project	Points	Project	Points	Project
1.49	Calmar	.812	Van Horne	.507	Russell	.224	Hawkeye
1.47	Williamsburg	.782	Promise City*	.464	Marne*	.217	Shambaugh*
1.42	Griswold	.769	St Anthony	.462	Rose Hill*	.215	Persia*
1.37	Palmer*	.724	Alta Vista	.452	Swaledale*	.198	Farnhamville
1.34	Evansdale	.714	Oran SSD*	.429	Hedrick	.195	Winthrop
1.24	Marcus	.643	Riverton*	.419	LeGrand	.187	Lawton
1.16	Boxton*	.633	Webb*	.416	Peosta*	.168	Exline*
1.06	Hume*	.611	Center Point	.397	Essex	.150	Portsmouth*
.988	Lucas*	.610	Williamson*	.391	Grant	.150	Ossian
.966	Melrose*	.580	Graf*	.390	East Peru*	.148	Gruver*
.965	Earlham	.578	Larchwood	.368	Hastings*	.120	Spring Hill*
.953	Walnut	.574	State Center	.358	Ayershire*	.099	Lehigh
.941	Colo	.565	Lincoln*	.321	Masonville*	.098	Readlyn
.908	Scranton	.545	Albion	.294	Adair	.083	Stanhope
.862	Lake View	.541	Grand Junction	.278	Grand Mound	.078	Maple Heights SSD*
.847	Maysville*	.513	Havelock*	.226	Spragueville	.077	McCausland

* Unsewered Community

SECTION 1. EXECUTIVE SUMMARY / OVERVIEW

This report presents the results of the water quality monitoring, assessment and control programs conducted in Iowa during 1986 and 1987. It was prepared following specific guidance provided by the U.S. Environmental Protection Agency (EPA, 1987a), and is intended to satisfy the state's biennial reporting requirements as described in Section 305(b) of the federal Clean Water Act (CWA). As in the past, the body of the report concentrates primarily on Iowa's surface waters, although one section specifically addresses Iowa groundwater quality and issues. Unlike past water quality reports, the 1988 report generally provides a statewide overview rather than a detailed site-specific discussion of water quality. More detailed information is available in three separate reports which are briefly summarized and referred to in the body of the main report. These separate reports include: (1) Methodologies for Assessing Use Support of Surface Waters; (2) Specific Waterbody Assessment Information and Results for Iowa Surface Waters; and (3) Nonpoint Source Assessment Results as required by Section 319 of the Water Quality Act of 1987.

The 1988 report also contains other new reporting requirements resulting from the Water Quality Act of 1987: namely, listings of waters potentially affected by toxic pollutants and a clean lakes classification report.

BACKGROUND INFORMATION

A major objective of this report is to describe the quality of Iowa's surface water in relation to the interim goal of the CWA which states, "Water quality should, wherever attainable, provide for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." This interim goal is commonly referred to as the "fishable/swimmable goal."

Iowa's water quality standards describe the extent to which various lakes and streams are expected to achieve the fishable/swimmable goal. All surface waters must meet certain general condition at all times. But, more specific standards of chemical and bacterial quality are applied to waters that have been designated in the rules as having to support such uses as swimming, fishing, boating and serving as a drinking water source. The rules are periodically reviewed to determine if additional uses should be designated for any lakes or streams.

SURFACE WATER ASSESSMENT

All waters of the state are protected under Iowa's Water Quality Standards, contained in Chapter 567-61 of the Iowa Administrative Code (IAC, 1986a). The standards designate uses for 18,300 stream miles, 49,700 lake acres, 31,700 reservoir acres, and 35,000 wetland acres. Most waterbodies specifically designated in the standards as supporting class A, B, and/or C uses were assessed during 1986 and 1987 for at least the following factors: whether designated uses were supported, if CWA goals were met, and whether or not toxic pollutants were monitored. Assessments of use support were based either on actual chemical monitoring data or on objective evaluation. Criteria were developed by DNR to determine whether CWA goals were met. If any waterbody or typically occur in water at concentrations too low to be detected.

Routine monitoring for toxics in sediment has not been conducted by DNR nor by other state agencies that monitor water quality in Iowa.

INTENSIVE SURVEYS

Several intensive surveys were conducted on Iowa surface waters during 1986 and 1987. These studies evaluated instream rates of bacterial decay as well as impacts on water quality from pesticides, landfills, and nitrates. Background data on certain waterbodies as well as waterbody evaluations from pollution control programs were also assessed in some in-depth studies throughout the state.

The following sections of this report expand upon the items summarized in this report overview. Detailed information is also available in the attached appendices and special reports which are noted throughout the body of the report.

SECTION 3. SURFACE WATER QUALITY

A. STATUS OF USE SUPPORT

1. METHODOLOGY

To determine the status of surface water quality in Iowa, the following types of data were analyzed: chemical data from the fixed station water quality monitoring network, toxic compounds data from the fish tissue monitoring network, and data from water quality special studies. These data were used to determine use support for Iowa surface waters. (For descriptions of the monitoring networks and special studies see Section 6: Surface Water Monitoring Programs.) In addition, DNR biologists evaluated impacts of nonpoint source pollution on most streams, lakes, flood control reservoirs, and wetlands designated by the DNR for fishable and/or swimmable uses.

Monitoring data for dissolved oxygen, pH, ammonia-nitrogen, nitrate-nitrogen, fecal coliform bacteria, and pesticides were summarized for the period October, 1985 through September, 1987. Five years of monitoring data for toxics other than ammonia (October, 1982 through September, 1987) were necessary to obtain adequate information to make assessments of use support.

The U.S. EPA water quality data base system, STORET, was used to summarize chemical water quality data and Iowa water quality standards violations. Based on the number and severity of violations at a monitoring station, assessments were made on the level of use support for Iowa surface waters. Waters evaluated for impacts resulting from nonpoint source pollution were assessed on the basis of the experience and professional judgement of DNR biologists.

Surface waters were designated to be in one of three use support categories: fully supporting, partially supporting, or not supporting designated uses (Table 3-1). Waters that fully support designated uses have healthy aquatic communities and seldom exceed water quality standards or other health-related criteria. Waters that partially support designated uses have aquatic communities that have been moderately impacted by pollution and parameters occasionally exceed water quality standards. Waters not supporting designated uses have aquatic communities that have been severely impacted through pollution and violations of water quality standards or other criteria are common.

TABLE 3-4 ACRES OF IOWA WETLANDS SUPPORTING DESIGNATED USES

Status of Use Support	Assessment Basis		Total Assessed	Percent of Total
	Evaluated	Monitored		
Acres Fully Supporting	8,351	0	8,351	31.9
acres threatened *	6,761	0	6,761	
Acres partially supporting	14,201	0	14,201	54.2
Acres not supporting	3,640	0	3,640	13.9
Total	26,192	0	26,192	

* Acres threatened is a subset of the acres fully supporting and is not included in the totals entered in the last line.

TABLE 3-5 ACRES OF IOWA FLOOD CONTROL RESERVOIRS SUPPORTING DESIGNATED USES

Status of Use Support	Assessment Basis		Total Assessed	Percent of Total
	Evaluated	Monitored		
Acres Fully Supporting	0	0	0	0.0
acres threatened *	0	0	0	
Acres partially supporting	16,400	15,300	31,700	100.0
Acres not supporting	0	0	0	0.0
Total	16,400	15,300	31,700	

* Acres threatened is a subset of the acres fully supporting and is not included in the totals entered in the last line.

Figure 3-1-c. Iowa stream segments assessed from October 1985 through September, 1987 as not supporting designated uses.

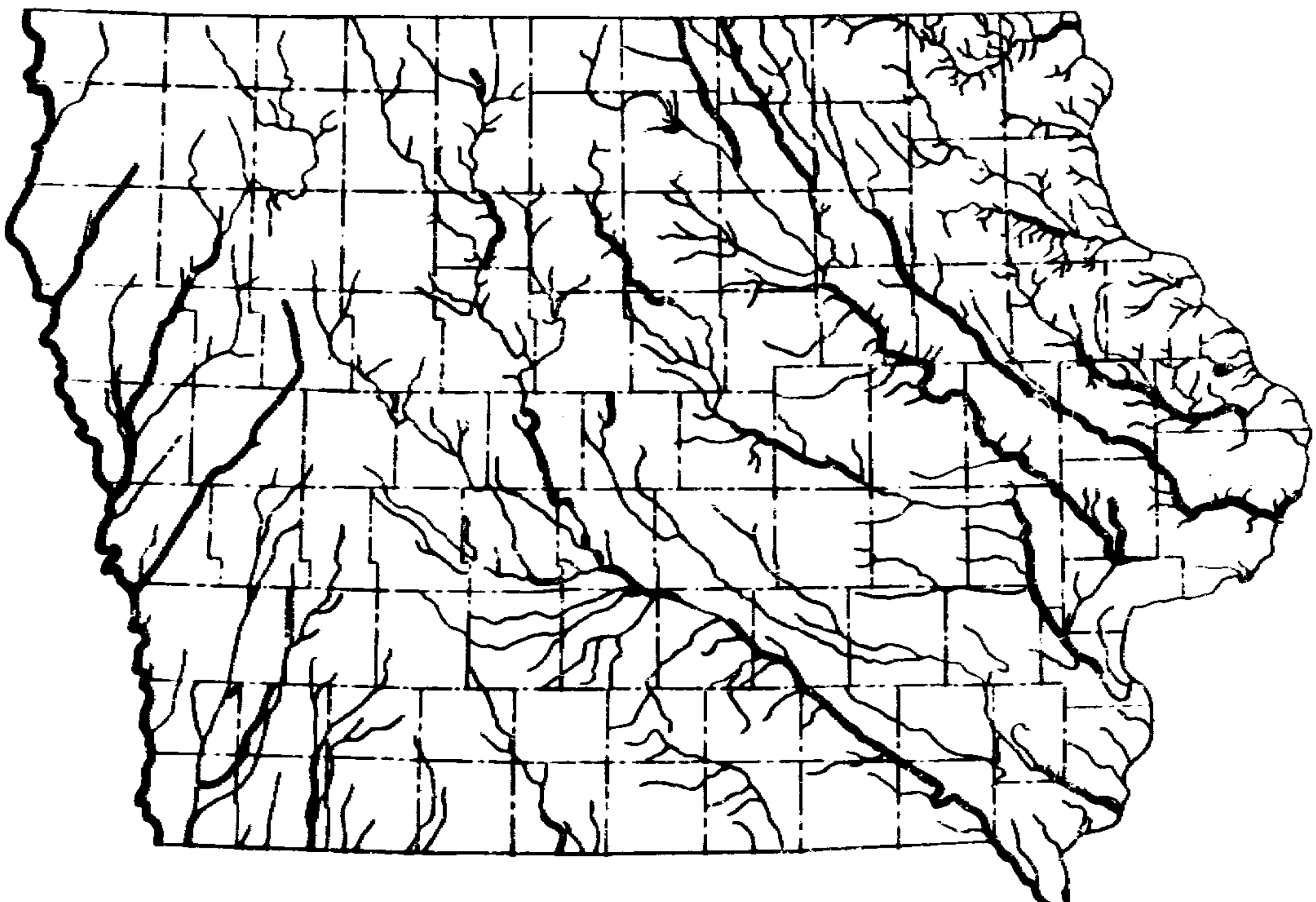
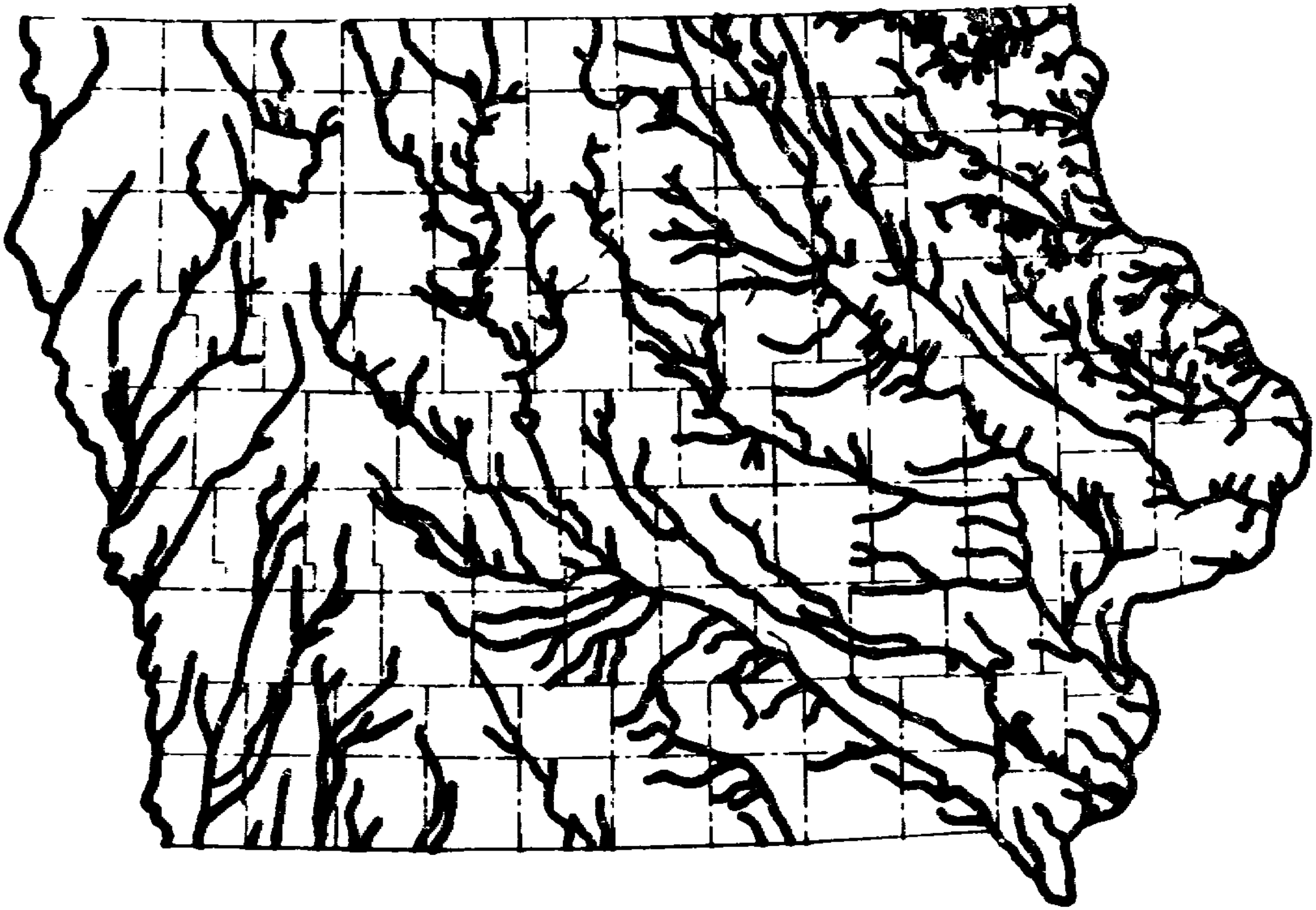
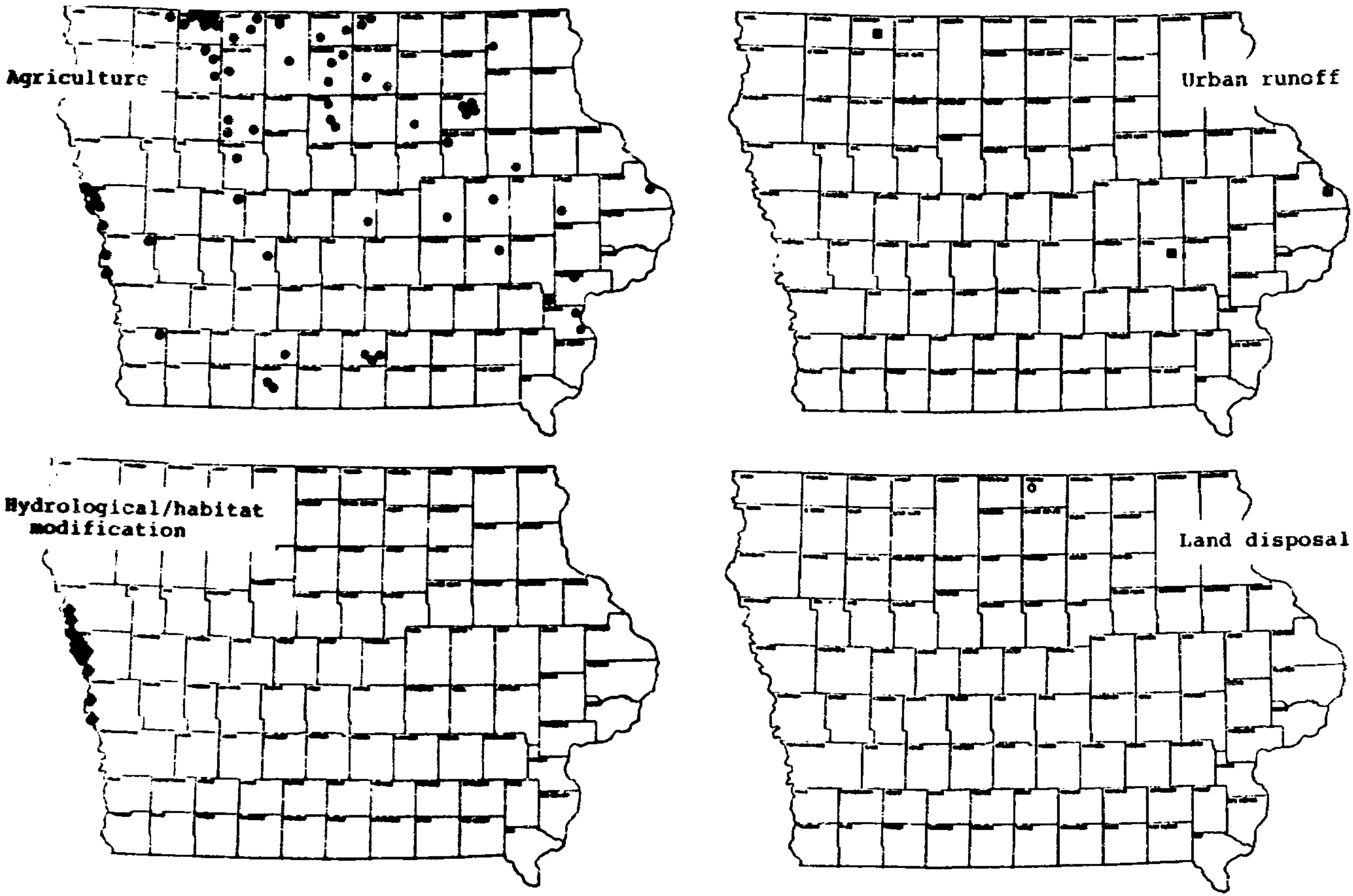


Figure 3-6. Iowa stream segments assessed as having impacts due to agricultural nonpoint sources*.



*Sources shown are for all waters in which use evaluation was determined to be fully supporting/threatened, partially supporting, or not supporting.

Figure 3-11. Sources of impacts on Iowa wetlands assessed from October, 1985 through September 1987*.



*Sources shown are for all waters in which use evaluation was determined to be fully supporting/threatened, partially supporting, or not supporting.

ten percent of the lake acres assessed. Other causes, including pH, organic enrichment, flow alteration, and other habitat alterations, each accounted for less than one percent of the major impacts on Iowa lakes (See Table 3-11 and Figure 3-10).

SILTATION

Siltation was identified as a major impact on 30 percent, and as a moderate/minor impact on five percent, of the lake acres assessed. Similar to streams, sediment is the most common pollutant, by volume, in Iowa lakes. While sediment is often a serious problem in man-made lakes, it is generally not a major problem in the natural lakes of north-central and northwest Iowa.

NUTRIENTS

Nutrients, primarily phosphorus and nitrogen, were identified as major impacts on 18 percent and as moderate/minor impacts on 27 percent of the lake acres assessed as not fully supporting designated uses. These nutrients were generally attributed to agricultural nonpoint source pollution. Urban point sources and urban nonpoint sources also contribute lesser amounts of nutrients to Iowa lakes.

PESTICIDES

Pesticides, primarily those used in row crop agriculture, were identified as moderate/minor impacts on 37 percent of the lake acres assessed as not fully supporting designated uses. These pesticides are occasionally found in most Iowa surface waters, but results from fish tissue monitoring indicate that lower concentrations tend to be found in lakes compared to streams and rivers. No lakes were assessed as having major impacts from pesticides.

The most important nonagricultural pesticide causing impacts in lakes is chlordane. This organochlorine insecticide was banned for agricultural use in late 1970s; chlordane was not commonly used for agricultural purposes in Iowa. Now used primarily for control of termites in residential areas, chlordane is a common contaminant of fish in both lakes and streams in Iowa. Levels of chlordane in fish from publicly-owned lakes in Iowa have been well below the FDA action level.

3. WETLANDS

Similar to other surface waters in Iowa, the major water quality impacts on wetlands are siltation, nutrients, and pesticides. These pollutants are attributed to agricultural nonpoint sources. Other significant impacts on wetlands are caused by organic enrichment, habitat alterations, and unknown toxicity. Ammonia was identified as a major impact on less than one percent of the wetland acres

TABLE 3-10.

Causes and sources of impacts on water quality of streams and rivers in Iowa assessed as not fully supporting uses for the period October 1985 through September 1987. Percentages of the total stream miles assessed (8235) are included in parentheses. The percentage of miles impacted by pathogens* is expressed in terms of miles assessed for support of Class A uses (2218).

Cause Categories	Stream Miles With Impacts: Major Impact	Moderate/minor Impact	Total
Pesticides	545 (6.6%)	7603 (92.3%)	8148 (98.9%)
Metals	2358 (28.6%)	213 (2.6%)	2571 (31.2%)
Nutrients	42 (<1%)	8107 (98.4%)	8149 (99.0%)
Siltation	6751 (82.0%)	1408 (17.1%)	8159 (99.1%)
Organic enrichment	25 (<1%)	1431 (17.4%)	1456 (17.7%)
*Pathogens	1190 (53.6%)	141 (6.4%)	1331 (60.0%)
Priority organics	156 (2%)	39 (<1%)	195 (2%)
Nonpriority organics	1 (<1%)	0	1 (<1%)
Ammonia/Nitrate	1 (<1%)	0	1 (<1%)
Other inorganics	0	21 (<1%)	21 (<1%)
pH	92 (1%)	0	92 (1%)
Other habitat alterations	3 (<1%)	86 (1%)	89 (1%)
Oil and grease	1 (<1%)	0	1 (<1%)

TABLE 3-13

Causes and sources of impacts on water quality of flood control reservoirs Iowa assessed as not fully supporting uses for the period October 1985 through September 1987. Percentages of the total acres assessed (31700) are included in parentheses.

Cause Categories	Reservoir Acres With Impacts: Major Impact	Moderate/minor Impact	Total
Pesticides	0	31700 (100%)	31700 (100%)
Nutrients	10400 (32.8%)	21300 (67.2%)	31700 (100%)
Siltation	31700 (100%)	0	31700 (100%)
Organic enrichment	0	10400 (32.8%)	10400 (32.8%)
Pathogens	15300 (48.3%)	0	15300 (48.3%)
Oil and grease	10400 (32.8%)	0	10400 (32.8%)

Source Categories	Reservoir Acres With Impacts: Major Impact	Moderate/minor Impact	Total
Point sources			
Municipal	0	10400 (32.8%)	10400 (32.8%)
Nonpoint sources			
Agriculture	31700 (100%)	0	31700 (100%)
Urban runoff	0	10400 (32.8%)	10400 (32.8%)
Other	0	15300 (48.3%)	15300 (48.3%)

TABLE 3-15
REPORTED FISH KILLS IN IOWA
FROM OCTOBER 1985 THROUGH NOVEMBER 1987
BY MAJOR RIVER BASIN

Stream Name	Date Kill Observed	No. of Fish	Area Affected	Suspected Pollutants	Suspected Source of Pollution
DES MOINES RIVER BASIN					
DALLAS COUNTY:					
North Raccoon River Backwaters	8-Jul-87				Low Dissolved Oxygen
GREENE COUNTY:					
Hardin Creek	20-Oct-85	550			Hog Confinement
HAMILTON COUNTY:					
Drainage Dist. 166	16-Nov-87	1800			Unknown
HANCOCK COUNTY:					
W. Otter Cr. and Otter Cr.*	20-May-87	37520	10-15 mi	NH3-N	Industrial Discharge
West Twin Lake	4-Aug-87	27382	93 Acres		Unknown
HUMBOLDT COUNTY:					
Unnamed Creek	20-Jul-87				Unknown
POLK COUNTY:					
Greenwood Park Pond	10-Jun-87				Unknown
WARREN COUNTY:					
Private Farm Pond	15-Mar-86	600			Possible Hog Wastes
WINNEBAGO COUNTY:					
Buffalo Creek	16-Sep-86	1982	2-3 mi	NH3-N, BOD	Feedlot Discharge
Buffalo Creek	6 Dec-87	28700			Unknown
WRIGHT COUNTY:					
Unnamed Creek	22-Jul-86	100			Unknown
W. Otter Cr. and Otter Cr.*	20-May-87	37520	10-15 mi	NH3-N	Industrial Discharge

* NOTE: These are the same kill.

location, lake name, lake numbers, location description, surface area, designated uses, and lake type.

Lakes delineated in the Water Quality Standards were grouped, based on hydrologic characteristics, into three categories for assessment purposes: major flood control reservoirs, lakes, and wetlands. Also, some of the lakes, and all four of the major reservoirs, are identified in the water quality standards as impoundments that make up all or portions of stream segments. Those whose characteristics make them more like lakes than streams were defined as lake waterbodies for assessment purposes. Examples of the descriptive information are given in Table 3-16 for lake, reservoir, and wetland bodies. A more detailed explanation of descriptive parameters may be found in the separate report entitled "Methodologies for Assessing Use Support of Surface Waters."

Each waterbody, for which sufficient information was available, was assessed to determine the degree to which each designated use is supported or impaired. Because use support or causes/sources of use impairment varied within some waterbodies, it was necessary to subdivide these waterbodies into portions with the same assessment results. Subdivision of waterbodies was only necessary for streams.

Each segment was defined specifically by subsegment number, subsegment description, downstream mile point, and subsegment length. Table 3-17 contains an example of a subsegmented waterbody. It should be noted that segments requiring no subdivision are identified with a subsegment number of zero.

For each assessed stream segment or subsegment, lake, reservoir and wetland, assessment results were compiled. These results include the following: assessment date, assessment type, assessment level (evaluated or monitored), support level for overall uses and for each designated use, support level for fishable/swimmable goals (CWA), trophic status (lakes & reservoirs only), toxics monitoring, elevated toxic levels, aquatic contamination information, use impairment causes and sources, and monitoring station descriptions.

Agricultural use of nitrogen fertilizer and pesticides, abandoned hazardous waste disposal sites, abandoned dumps, and unpermitted land disposal are noted as concerns of the highest priority in regard to the quality of Iowa's groundwater at the present time.

NITRATES

Fertilizer use in Iowa has increased markedly over the past 30 years. An estimated 30-50% of the fertilizer nitrogen applied to Iowa's farm acres is lost each year. Some nitrogen is lost to the atmosphere while a varying and unknown amount percolates through the soil and into the groundwater. Nitrate contamination of groundwater resulting from fertilizer use is attributable primarily to infiltration through soils along with some contamination due to surface runoff into sinkholes, ag-drainage wells, and improperly abandoned wells. Currently, approximately 26% of the state's population is served by water with nitrate concentrations in excess of 22 mg/l which is one-half of the maximum allowable level. Seepage from lagoons, feedlot operations, and septic tanks may also contribute to excessive nitrate concentrations in groundwater supplies, though on a much smaller scale. Various documented health effects, including methemoglobinemia as well as potential risks of cardiovascular disorders, hypertension, and increased cancer incidence, contribute to the concerns over high nitrate levels in Iowa groundwater.

PESTICIDES

Pesticides were first detected in Iowa groundwater in 1974. Research and monitoring studies conducted by various state agencies since then have confirmed findings that many of those pesticides most commonly used in Iowa are leaching into shallow aquifers in various Iowa locations. Although pesticide levels detected to date have been low, the ever increasing statewide usage of pesticides along with various epidemiologic studies which implicate pesticides as potential risks for adverse health effects (non-Hodgkin lymphoma, chronic lymphocytic leukemia, multiple myeloma), justify continued attention to pesticide application practices and groundwater contamination throughout the state.

SYNTHETIC ORGANIC COMPOUNDS

Along with pesticides, synthetic organic compounds (SOC's) have been detected in Iowa groundwater. Various aromatic hydrocarbons such as benzene, styrene, toluene, and ethylbenzene have been detected at low levels. The presence of aromatic hydrocarbons in groundwater suggests the leakage or spillage of petroleum products. Industrial organic chemicals, specifically degreasers and other solvents such as trichloroethene and tetrachloroethene, have also repeatedly been found at low levels. The presence of these chemicals in groundwater suggests leaching from a disposal site or spillage. Several of these synthetic organic compounds may be related to adverse health effects, both acute and chronic. Many of these SOC's are

FISCAL YEAR 1989

CONSTRUCTION GRANTS STATE PROJECT PRIORITY LIST
DISCHARGER RANKING

Points	Project	Points	Project	Points	Project	Points	Project
.072	Donahue	.045	Little Sioux*	.018	Palo	.005	Slater
.066	Keota	.042	Clarence	.016	Farragut	.001	Harpers Ferry*
.064	Millerton*	.038	Shellsburg	.014	Pleasanton*	.001	Eldon
.062	Lockridge*	.038	Dexter	.010	New Liberty*	.0003	Morley*
.060	Monroe	.035	Wapello	.007	Kirkville*	.0000	Mondamin
.055	Denmark SSD*	.025	Atkins	.007	Bellevue	.0000	Leland
.052	Larrabee	.025	Ireton	.006	Redfield	.0000	Wesball
.052	Ollie*	.022	Oyens	.006	Alleman*	.0000	Whittier SSD*

* Unsewered Community

waterbody segment was assessed as not supporting the designated uses, the cause and source of the nonsupport were also recorded. All of the assessment information on each waterbody or waterbody segment has been retained on DNR's own data system which was designed to permit DNR to fulfill Section 305(b) reporting requirements but will not permit direct data entry into the new U.S. EPA Waterbody System (WBS).

Of the 3,235 miles of streams assessed during 1986 and 1987, about 20% were described as not supporting uses for which they were designated in the state's water quality standards. About 79% were partially supporting those uses. Lakes fared much better with 35% of the 48,549 assessed acres supporting designated uses, about 42% partially supporting, and a little less than 3% not supporting those uses. Wetlands were found to have 32% of the 26,192 assessed acres fully supporting designated uses, about 54% partially supporting, and about 14% not supporting. One hundred percent of flood control reservoirs were assessed to be partially supporting designated uses (31,700 acres).

The failure of the assessed waterbodies to fully support their designated uses was attributed primarily to nonpoint sources of pollution (mainly sediment and nutrients). There are no direct discharges of wastewater to lakes in Iowa, so all lake pollution problems were attributed to nonpoint sources.

Trend analysis of water quality was not done for this report for two primary reasons: EPA guidance did not specifically call for trend analysis for the 1988 report and the DNR water sampling network has been changed. Monitoring stations are not necessarily the same as for the last report, so sampling data are not comparable.

PUBLIC HEALTH CONCERNS / AQUATIC LIFE CONCERNS

Although no surface water supplies were closed to fishing in 1986 nor 1987, 42 fish kills were reported from October, 1985 through September, 1987. Only nine fish kills were considered to be caused by toxics, and six were attributable to ammonia. About one-half of the fish kills resulted from naturally occurring conditions, such as low dissolved oxygen or high water temperatures. Other reported causes included disease, hog confinement wastes and industrial waste discharges.

An advisory was issued for one privately-owned urban impoundment in cooperation with the owner. No other advisories were issued for either privately-owned or publicly-owned Iowa waters.

GROUNDWATER QUALITY

Groundwater withdrawals account for nearly 85% of the total water uses in Iowa, with approximately 80% of all Iowa's drinking water coming from groundwater aquifers. The quality and quantity of Iowa aquifers varies throughout the state. Studies have shown that overall, shallow aquifers are more susceptible to contamination than deeper aquifers.

Major groundwater concerns in Iowa center around human activities and resultant groundwater contamination. Agricultural chemicals, landfills, underground storage tanks, agricultural drainage wells, livestock wastes, and

SECTION 2. BACKGROUND

The two tables in this section provide general statistics about the state of Iowa and its water resources. In order to clarify what the numerical entries represent, explanations and references are provided.

A. ATLAS

TABLE 2-1

INFORMATION		SOURCE OF INFORMATION
State population	2,951,000	U.S. Census Bureau population estimate for July 1, 1986.
State surface area	56,275 sq. mi.	Total area (land area is 55,965 sq. mi., and permanent inland water area is 310 sq. mi.). (Reference: IOR, 1985-86)
Number of River basins	6	The major river basins are: Northeast, Iowa-Cedar, Skunk, Des Moines, Southern, and Western as defined in Chapter 467D of the Code of Iowa.
Total number of river miles	18,300 mi.	Classified streams with a drainage area of five or more square miles. (Reference: ICC, 1971).
Number of border river miles	616 mi.	The border rivers are: Mississippi River (316 mi.), Des Moines River (30 mi.), Big Sioux River (86 mi.), Missouri River (184 mi.) (Reference: ICC, 1971).
Number of lakes and reservoirs	282	The number of lakes and reservoirs comes from several sources. The major source is Chapter 61 of the Iowa Administrative Code. Listed in this section are 253 lakes and a number of wetlands. Another 20 lakes, which are not presently listed in Chapter 61, are included. Nine impoundments that are described as stream segments or portions of stream segments in Chapter 61 are assessed as lakes or reservoirs in this report. The nine impoundments are: Lake Red Rock, Saylorville Reservoir, Coralville Reservoir, Lake Rathbun, Beeds Lake, Upper and Lower Pine Lakes, Big Creek Lake and Lake Panorama. Small, privately-owned ponds are excluded.

Table 3-1. Criteria for designated use support classification (modified from U.S. EPA 1987a: 29).

Assessment Type	Assessment Description	Support of designated use: Fully supporting	Partially supporting	Not supporting
Evaluated	No data, or data do not meet completeness criteria*; assessment based on professional judgement of DNR staff.	Not threatened: sources have little or no impact on the uses, and the waterbody's ability to support uses is not expected to decline over the next 5 to 10 years. Threatened: sources have little or no impact on the uses, and the waterbody's ability to support uses is expected to decline over the next 5 to 10 years. Data, if available, indicate little or no impact on uses.	Sources cause moderate adverse impacts, but the waterbody supports the uses. Data, if available, indicate moderate impacts to uses.	Sources cause severe adverse impacts; some uses may have been precluded. Data, if available, meet conditions for "not supporting" specified in data completeness criteria*, or data indicate severe impacts.
Monitored	Fixed station sampling: chemical analysis of water; data meet completeness criteria*.	For all pollutants, criteria exceeded in <10% of measurements and mean of measurements is less than criteria.	For any one pollutant, criteria exceeded 11-25% and mean of measurements is less than criteria; or criteria exceeded <10% and mean is greater than criteria.	For any one pollutant, criteria exceeded >25% or criteria exceeded 11-25% and mean of measurements is greater than criteria.

Classification guidelines for multiple use waterbodies:
- Fully supporting - all uses are fully supported
- Partially supporting - one or more uses partially supported and remaining uses are fully supported
- Not supporting - one or more uses not supported

*Completeness criteria for data from fixed station monitoring:

for dissolved oxygen, pH, ammonia-nitrogen, and fecal coliform bacteria: at least 75% of the samples expected from two years of quarterly monitoring needs to be present;

for metals: data from all scheduled annual sampling from October 1982 through September 1987 should be present. Where metals have been monitored more frequently than annually, and five or more samples have been analyzed, data will be used even if the station was discontinued during the five-year period.

TABLE 3-6 MILES OF DESIGNATED IOWA STREAMS ATTAINING CLEAN WATER ACT GOALS

Goal Attainment	Fishable Goal	Swimmable Goal
Miles meeting	6,714	1,638
Miles not meeting	1,497	580
Miles not attainable	24	6,017*
Total	8,235	8,235

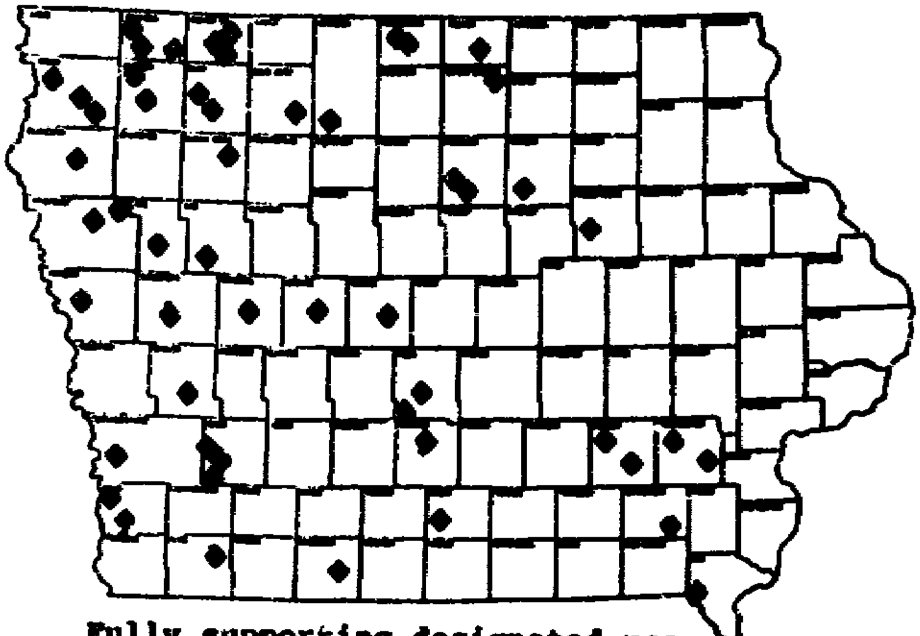
* Does not include 81 designated stream miles that were not assessed.

TABLE 3-7 ACRES OF DESIGNATED IOWA LAKES ATTAINING CLEAN WATER ACT GOALS

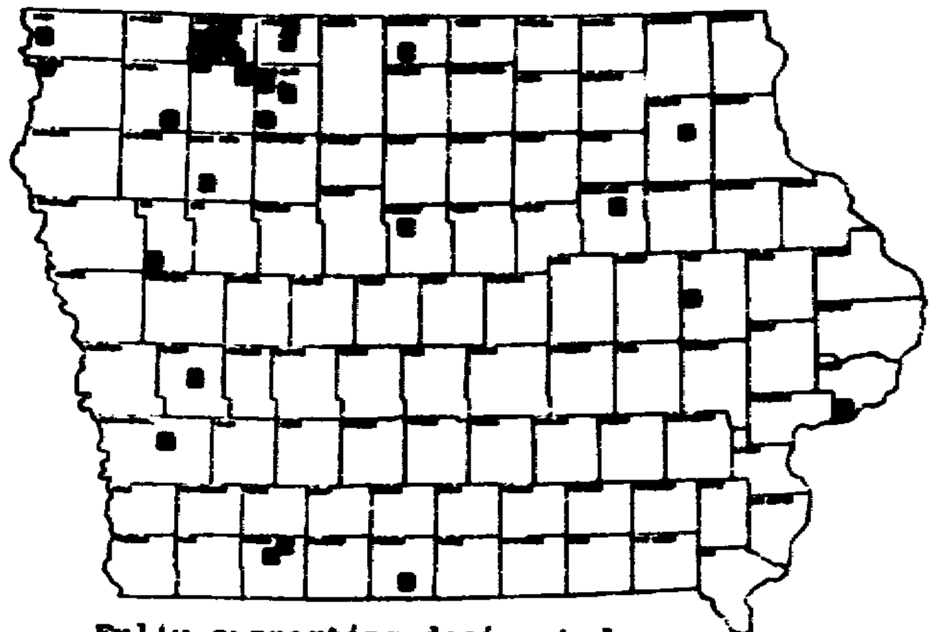
Goal Attainment	Fishable Goal	Swimmable Goal
Acres meeting	47,834	45,650
Acres not meeting	712	686
Acres not attainable	3	2,213*
Total	48,549	48,549

* Does not include 123 designated lake acres that were not assessed.

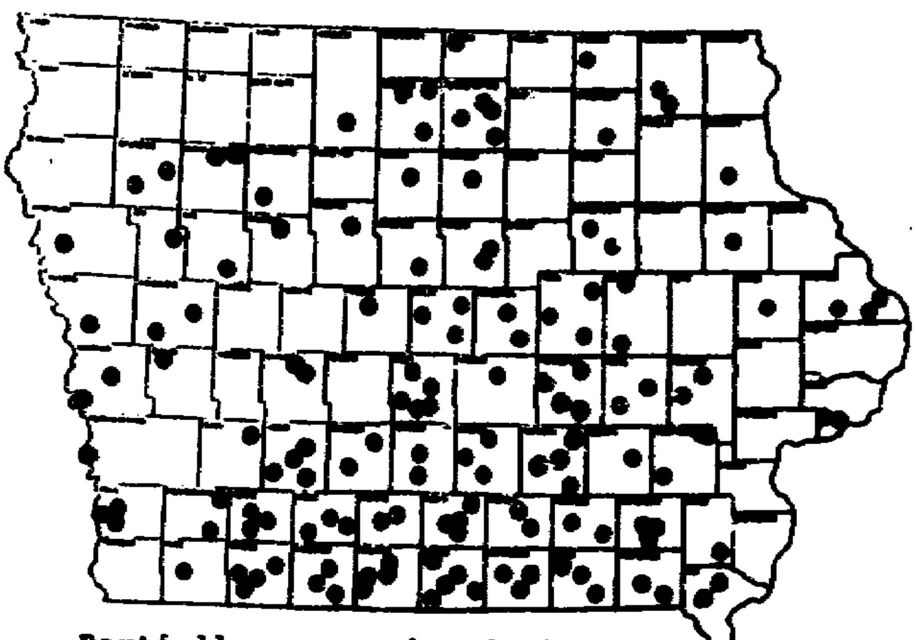
Figure 3-2. Iowa lakes assessed from October, 1985 through September, 1987.



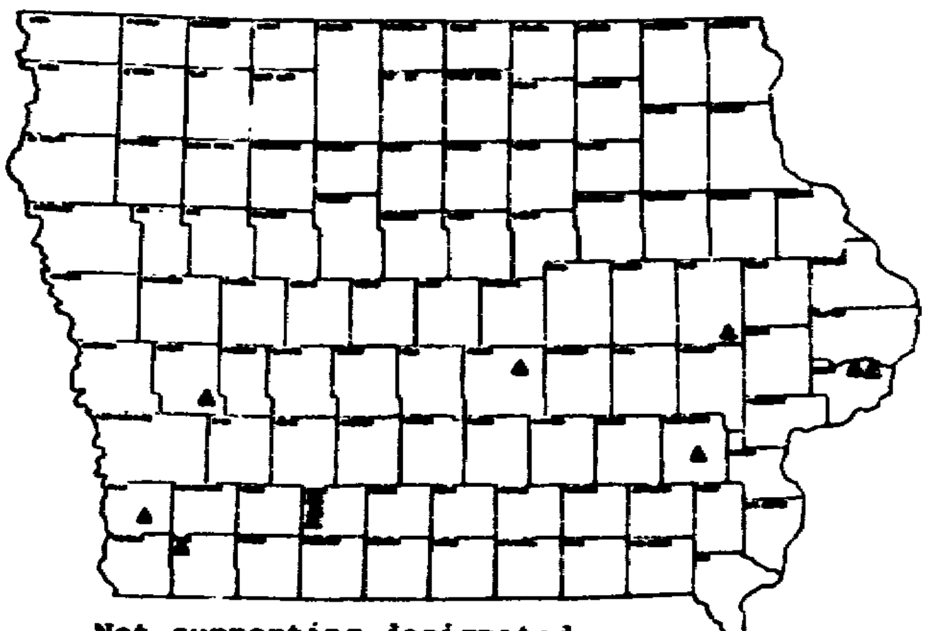
Fully supporting designated uses, not threatened



Fully supporting designated uses, threatened

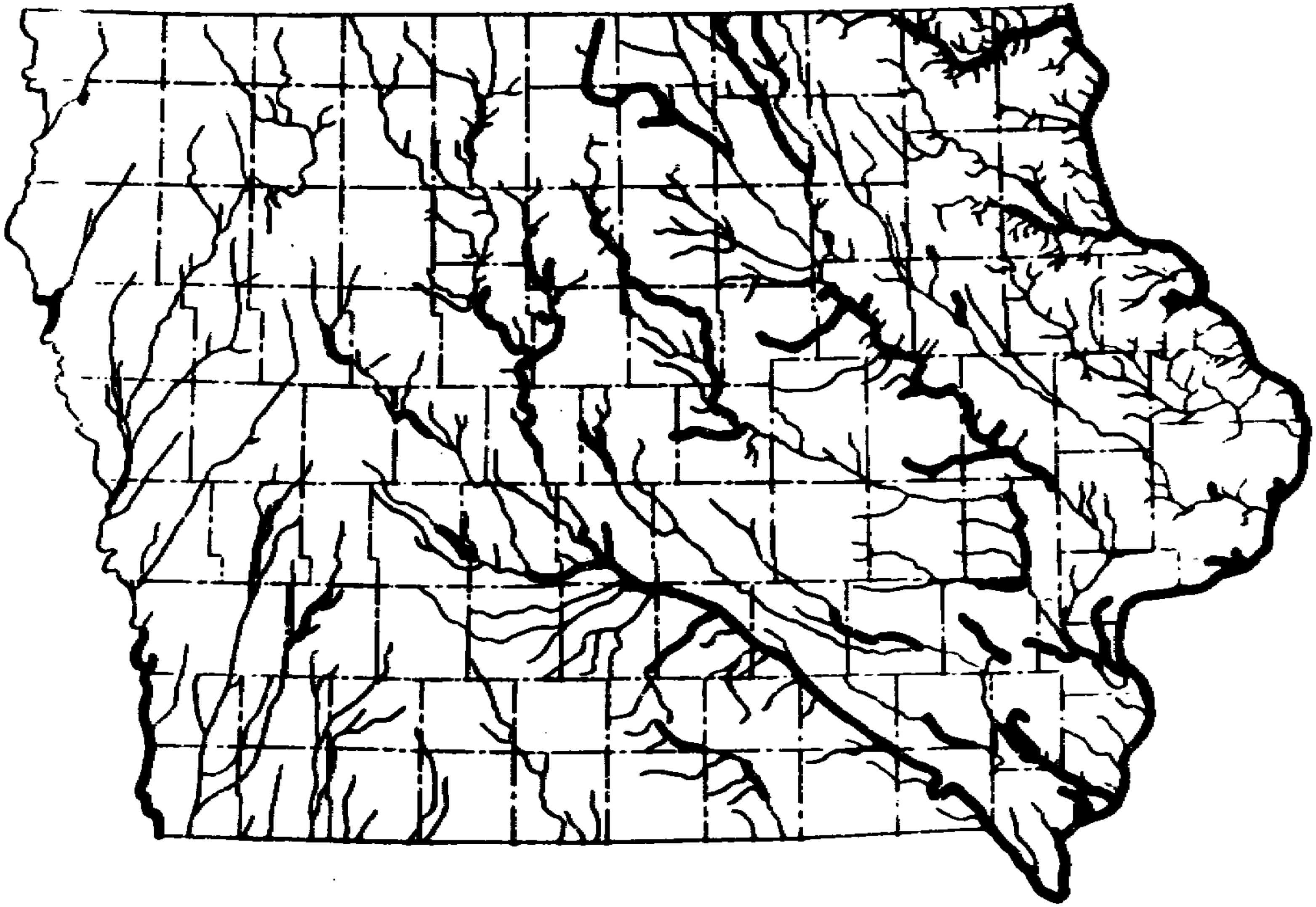


Partially supporting designated uses



Not supporting designated uses

Figure 3-7. Iowa stream segments assessed as having impacts due to urban runoff*.



*Sources shown are for all waters in which use evaluation was determined to be fully supporting/threatened, partially supporting, or not supporting.

C. CAUSES AND SOURCES OF NONSUPPORT OF DESIGNATED USES

The causes and sources of use impairments were identified for streams, lakes, wetlands, and flood control reservoirs in Iowa. Tables 3-10 through 3-13 summarize the causes and sources of use impairment for all waters assessed as "not fully supporting" designated uses. The impacts on these waters have been divided into two groups: major impacts and moderate/minor impacts. The cause or source of the most severe use impairment was identified as a "major" impact; those causes and sources leading to less severe impairments were identified as "moderate/minor" impacts.

For each type of waterbody (streams, lakes, wetlands, and reservoirs), the causes and sources of use impairments are discussed. Tables 3-10 through 3-13 indicate the relative importance of the various causes and sources of use impairments of Iowa surface waters.

1. STREAMS AND RIVERS

Three causes--siltation, nutrients, and pesticides--each were identified as impacts on 99 percent of the stream miles assessed as not fully supporting designated uses. These causes are all primarily attributed to agricultural nonpoint sources. That is, sediment, nutrients, and pesticides are carried from farm fields to streams and rivers during runoff events related to precipitation.

Metals and pathogens were identified as major or moderate/minor impacts on 31 percent and 16 percent, respectively, of the miles assessed as not fully supporting designated uses. Causes identified as impacts on two percent or less of the stream miles assessed included priority organics, nonpriority organics, ammonia/nitrate, other inorganics, pH, other habitat alterations, oil/grease, and navigation (see Table 3-10 and Figures 3-4 to 3-9).

SILTATION

Siltation, primarily from agricultural nonpoint sources, was identified as a major impact on 82 percent of the miles assessed as not fully supporting designated uses and was identified as a moderate/minor impact on 17 percent of the miles assessed. Thus, virtually all stream miles assessed were impacted to some extent by sediment eroded from row crop agricultural areas of Iowa.

NUTRIENTS

Although nutrients were identified as major impacts on less than one percent of the stream miles assessed as not fully supporting designated uses, they were identified as moderate/minor impacts on 99 percent of the miles assessed. This result indicates the widespread impact of common agricultural fertilizers that contribute assessed (see Table 3-12 and Figure 3-11).

SILTATION

Siltation is the most common impact on Iowa wetlands and was identified as a major impact on 53 percent, and a moderate/minor impact on five percent, of the wetland acres assessed as not fully supporting designated uses. Wetlands are susceptible to loss of surface area and loss of depth due to siltation.

NUTRIENTS

Nutrients were identified as major impacts on nine percent, and as moderate/minor impacts on 39 percent, of the wetland acres assessed as not fully supporting designated uses. Wetlands with impacts due to nutrients are those that support a fishery. That is, high levels of nutrients can lead to excess growth of aquatic vegetation that can interfere with growth of fish and that can limit the usefulness of the wetland for fishing.

High levels of nutrients (i.e., nitrogen and phosphorus) are less of a problem in wetlands than in lakes. Wetlands are typically shallow, very productive, and are managed primarily for use by resident and migratory waterfowl. High levels of nutrients may promote growth of emergent vegetation that is beneficial to waterfowl.

PESTICIDES

No wetland acres were assessed as having major water quality impacts due to pesticides. Over 38 percent of the acres assessed as not fully supporting designated uses, however, were identified as having moderate/minor impacts due to pesticides.

ORGANIC ENRICHMENT

Moderate/minor impacts due to organic enrichment were identified on two percent of the wetland acres assessed as not fully supporting designated uses. No wetlands were identified as having major impacts due to organic enrichment. Wetlands in Iowa are naturally rich in organic material, and man-made additions to the organic material would have, at most, minor impacts on a wetland.

OTHER HABITAT ALTERATIONS

Approximately 15 percent of the wetland acres assessed as not fully supporting designated uses were identified as having a major impact due to "other habitat alterations". These acres include several oxbow lakes along the Missouri River in western Iowa that are

TABLE 3-10. (continued)

Source Categories	Major Impact	Moderate/minor Impact	Total Miles
	Stream Miles With Impacts		
Point Sources:			
Industrial	219 (2.6%)	221 (2.7%)	440 (5.3%)
Municipal	524 (6.4%)	828 (10.0%)	1352 (16.4%)
Nonpoint Sources			
Agriculture	7395 (89.8%)	753 (9.1%)	8148 (98.9%)
Urban runoff	680 (8.3%)	1234 (15.0%)	1914 (23.2%)
Resource extraction	0	103 (1.3%)	103 (1.3%)
Land disposal	3 (<1%)	165 (2.0%)	168 (2.0%)
Hydrological/ habitat mod.	0	86 (1.0%)	86 (1.0%)
Natural	2041 (24.8%)	482 (5.9%)	2523 (30.6%)
Navigation	0	316 (3.8%)	316 (3.8%)
Construction	0	16 (<1%)	16 (<1%)
Other	1 (<1%)	72 (<1%)	73 (<1%)

D. PUBLIC HEALTH/AQUATIC LIFE CONCERNS

The information reported in Table 3-14 provides a measure of the relative contribution to use impairment by various types of toxic pollutants on specific waterbody types. This table includes the total (overall) size of each waterbody type that met the "monitored" completeness criteria for any toxic compound and includes the size of those "monitored" waters with an elevated level of any toxic compound. Although the number of chemical compounds that could be considered to be toxic is extensive, it should be noted that in order to be included in the "size monitored for toxics" category of the table, at least one toxic compound had to be detected in the waterbody. An "elevated level" of a toxic refers to a violation of the numerical state water quality standards or, where numerical criteria do not exist, levels of concern (see US EPA, 1987a: 12). For pesticides, levels greater than preliminary health advisory guidelines (Wnuk et.al., 1987) were used to identify elevated levels.

TABLE 3-14

TOTAL SIZE AFFECTED BY TOXICS

WATERBODY	SIZE MONITORED FOR TOXICS	SIZE WITH ELEVATED LEVELS OF TOXICS
Rivers (miles)	2,624	2,097
Flood Control Res. (acres)	20,700	0
Lakes (acres)	0	0
Wetlands (acres)	0	0

1. TOXICS-RELATED CONCERNS

TOXIC POLLUTANTS IN FISH

Monitoring of fish tissue samples for several pesticides, organic chemicals, and metals is conducted by the DNR in cooperation with the U.S. EPA Region VII office in Kansas City, Kansas. Fish are collected in late summer by DNR biologists, and the samples are analysed by U.S. EPA to determine the levels of toxic substances present.

Beginning with monitoring in 1986, the emphasis of the DNR monitoring program was changed from analysis of whole-fish samples (usually carp) to analysis of fillets from channel catfish. This change was necessary to make the monitoring program more relevant and responsive to the protection of people that consume fish from Iowa waters.

TABLE 3-15 (CONTINUED)
REPORTED FISH KILLS IN IOWA
FROM OCTOBER 1985 THROUGH NOVEMBER 1987
BY MAJOR RIVER BASIN

Stream Name	Date Kill Observed	No. of Fish	Area Affected	Suspected Pollutants	Suspected Source of Pollution
IOWA-CEDAR RIVER BASIN					
BREMER COUNTY:					
Cedar River	8-Aug-86	160			Natural Causes
Quarter Section Run	4-Aug-87				Warm Water Temperature
BUTLER COUNTY:					
Palmer Creek	11-Sep-86	1200		NH3-N, DO	Feedlot
CERRO GORDO COUNTY:					
Calmus Creek	25-Aug-86		.75-1 mi	High pH	Industrial Discharge
Unnamed Creek	5-Aug-87	335	50 yds		Low Dissolved Oxygen, High Temperature
FRANKLIN COUNTY:					
Unnamed Creek	21-Aug-87				Feedlot
HANCOCK COUNTY:					
Drainage Ditch 89	14-Aug-87	1051	2-3 mi	NH3-N	Unknown
MUSCATINE COUNTY:					
Mud Creek	2-May-86	8000	15.2 mi	Zn-NH3-Cl	Chemical Company
STORY AND MARSHALL COUNTIES:					
Little Minerva Creek	9-Sep-86	>200			Dairy Farm Wastes
WASHINGTON COUNTY:					
English River	23-Jul-87	100			Low Dissolved Oxygen
WORTH COUNTY:					
Beaver Creek	9-Jun-86	4400			Unknown

Table 3-16. Example of waterbody-specific information for Iowa lakes, reservoirs, and wetlands.

305b Assessment Results for Lakes, Reservoirs and Wetlands [illegible]

Name: Coralville Reservoir County: Johnson No: 1 Type: Reservoir Twp: 80 Range: 6 Sec: Area: 4900 acres Region: 6 Designated Use(s): A B(w)

Assessment Date: 03/15/88 Assessment Type: Both Assessment Level: Monitored Trophic Status: Eutrophic Trend: Stable Significant Publicly Owned Lake: No

Support of Designated Uses: Overall Use: Partially supported Class A: Partially supported Class B: Partially supported CWA Goals: Fishable Goal: Met Swimmable Goal: Met

Toxics: Monitored: Yes Elevated Levels: No Aquatic Contamination: Monitoring: No Contam. Tissue: No Consump. Restrict.: No Abnormalities: No

Causes of Use Impairment: Pesticides (M) Nutrients (M) Siltation (M) Pathogens (M) Sources of Use Impairment: Agriculture (M) Other (M)

Monitoring Stations: 2150BA LOOA02 - Coralville Reservoir.

Name: Kent Park Lake County: Johnson No: 2 Type: Lake Twp: 80 Range: 8 Sec: 24 Area: 26 acres Region: 6 Designated Use(s): A B(w)

Assessment Date: 03/15/88 Assessment Type: Both Assessment Level: Evaluated Trophic Status: Eutrophic Trend: Stable Significant Publicly Owned Lake: Yes

Support of Designated Uses: Overall Use: Partially supported Class A: Partially supported Class B: Partially supported CWA Goals: Fishable Goal: Met Swimmable Goal: Met

Causes of Use Impairment: Pesticides (S) Nutrients (S) Siltation (M) Sources of Use Impairment: Agriculture (M)

Name: Lake McBride County: Johnson No: 3 Type: Lake Twp: 81 Range: 6 Sec: 29 Area: 812 acres Region: 6 Designated Use(s): A B(w)

Assessment Date: 03/15/88 Assessment Type: Both Assessment Level: Evaluated Trophic Status: Eutrophic Trend: Stable Significant Publicly Owned Lake: Yes

Support of Designated Uses: Overall Use: Partially supported Class A: Partially supported Class B: Partially supported CWA Goals: Fishable Goal: Met Swimmable Goal: Met

Causes of Use Impairment: Pesticides (S) Nutrients (M) Siltation (M) Organic Enrichment/DO (S) Oil and Grease (S) Sources of Use Impairment: Agriculture (M) Urban Runoff (S)

Name: Swan Lake County: Johnson No: 4 Type: Wetland Twp: 80 Range: 7 Sec: 5 Area: 30 acres Region: 6 Designated Use(s): B(w)

Assessment Date: 03/15/88 Assessment Type: Both Assessment Level: Evaluated Trophic Status: N/A Trend: N/A Significant Publicly Owned Lake: No

Support of Designated Uses: Overall Use: Not determined Class B: Not determined CWA Goals: Fishable Goal: Not determined Swimmable Goal: Not attainable

Causes of Use Impairment: Sources of Use Impairment:

Name: Central Park Lake County: Jones No: 1 Type: Lake Twp: 84 Range: 3 Sec: 1 Area: 25 acres Region: 1 Designated Use(s): A B(w)

Assessment Date: 03/15/88 Assessment Type: Both Assessment Level: Evaluated Trophic Status: Eutrophic Trend: Degrading Significant Publicly Owned Lake: Yes

Support of Designated Uses: Overall Use: Partially supported Class A: Partially supported Class B: Partially supported CWA Goals: Fishable Goal: Met Swimmable Goal: Met

Causes of Use Impairment: Pesticides (S) Nutrients (M) Siltation (M) Sources of Use Impairment: Agriculture (M)

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carcinogenic and consequently, pose a potential long-term threat to human health.

LAND DISPOSAL OF WASTE

Land disposal of various wastes including manure, sewage sludge, and septage, currently, appear not to be adversely affecting Iowa's groundwater to any great degree. However, concern over potential bacterial contamination of shallow private and public wells in alluvial aquifers would seem reasonable. No consistent monitoring of groundwater sources has been conducted to address these concerns as yet and would appear advisable. Potential for contamination, especially in the karst areas of northeast Iowa, is unquestionable.

UNCONTROLLED SITES

Abandoned dumps and hazardous waste sites continue to pose potential threats to the quality of Iowa's groundwater. By 1976, approximately 2,000 municipal dumps had been closed in Iowa. Sites were closed by covering debris with six to twelve inches of soil cover and revegetating the area. Potential leakage from some of these sites could lead to aquifer contamination by metals, pesticides, inorganic chemicals, and various halogenated organics. Uncontrolled/abandoned hazardous waste disposal sites have resulted in the contamination of 14 public water supplies across the state as well as several other private drinking water supplies. Approximately 90% of the known problem sites have already adversely affected shallow aquifers. Numerous other sites remain to be evaluated and addressed. Industrial and domestic waste buried at these sites offer additional concerns for the quality of groundwater in Iowa.

The major concerns regarding the condition and future of Iowa's groundwater quality are being addressed by the passage of the Groundwater Protection Act which became effective in July of 1987. The Act initiated the development of strategies to evaluate and monitor potential contamination of Iowa's groundwater in an organized, coordinated fashion. In addition, the Act implemented new research and educational priorities relating to groundwater issues and strategies and authorized new rules to deal with prevention and clean-up of groundwater contamination.

3. Several major groundwater quality studies were conducted in Iowa during the reporting period. Preliminary analyses for those studies are currently underway. No final reports are available.

(a) The U.S. Geologic Survey, in cooperation with DNR and UHL, has conducted an annual nonrandom sample survey of municipal groundwater supplies since 1985. Raw water samples have been analyzed for pesticides and nitrates. Pesticides have been detected in many wells across the state. Shallow wells appear to be more frequently contaminated than the deeper bedrock

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 11

INFORMATIONAL

BIENNIAL REPORT -- "WATER QUALITY IN IOWA DURING 1986 AND 1987"

Section 305(b) of the Clean Water Act requires all states to submit a biennial report on the water quality of each water body in the state. The 305(b) report due April 1, 1988 has been submitted to U.S. EPA Region VIII.

The water quality report summarizes Iowa water quality during the years 1986 and 1987. Each type of water body in the state (stream, lake, wetland, reservoir) was assessed by use of a computerized data system for at least the following factors: whether designated water body uses were supported, whether Clean Water Acts goals were met, and whether or not toxic pollutants were monitored. Assessments of use were based either on actual chemical monitoring data or on objective evaluation.

Results of this assessment were detailed in the report and supplemented with information on sources of impacts and programs to address impairments.

A summary of the report will be present at the May, 1988 meeting.

Stephanie Pettit
May 4, 1988

(I23.MIN/sc)

improper management of hazardous substances all contribute to some degree to groundwater degradation. Several studies in northeastern Iowa have focused primarily on contamination involving nitrates, pesticides, and other man-made organic chemicals. High levels of nitrates, which can cause severe health problems in infants (methemoglobinemia) as well as increased risks for cardiovascular disorders, hypertension, and certain cancers have been detected in several groundwater drinking water supplies throughout the state. Approximately 26% of the state's population is currently served by water with nitrate concentrations in excess of 22 mg/l which is one half of the MCL for nitrate in drinking water. Nitrogen fertilizer usage, animal wastes, and lagoons all contribute to elevated nitrate levels in groundwater. Pesticide runoff into agricultural drainage wells and sinkholes, as well as pesticide infiltration through soils, have been responsible for the presence of pesticides in groundwater. Studies in northeast Iowa's karst areas (Hallberg, 1986), and the statewide sampling during 1985, 1986 and 1987 (USGS) have detected low levels of various pesticides in Iowa groundwater. The herbicide Atrazine has been the most frequently detected pesticide. Others included Lasso, Bladex, Dual, Sencor, Lexone, and Dyfonate which were detected at varying levels. Although the concentrations at which these pesticides were found are thought to pose no immediate threat to public health, little is known about the effects of long-term exposure to low concentrations of many of these chemicals or their breakdown products.

Along with pesticides, synthetic organic compounds have been detected in Iowa groundwater. Various aromatic hydrocarbons such as benzene and toluene along with certain industrial organic chemicals, mostly degreasers or solvents such as trichloroethene, have been detected in both raw (untreated), and finished (treated) groundwater. In several instances, concentrations high enough to be considered a health concern for long-term exposure have been detected.

SPECIAL STATE CONCERNS

Overwhelming concern over groundwater quality resulted in the passage and implementation of the 1987 Groundwater Protection Act in July, 1987 which essentially initiated a coordinated statewide effort to assess, address, and manage Iowa's groundwater resources.

POINT SOURCE WATER POLLUTION CONTROL PROGRAM

Iowa has a large number of small rural communities, small industries and family farms with livestock feeding facilities, many of which have point source discharges. Point source pollution is regulated by various DNR programs designed to control the amount of wastewater discharged into Iowa's rivers and streams. Any construction relevant to wastewater treatment facilities, either new or modified construction, requires a DNR permit. Ninety-nine municipal wastewater treatment facility projects were issued permits from October 1, 1985 through September 30, 1987. In addition, 235 construction permits were issued for sanitary sewer extensions and 26 for wastewater lift stations.

DNR has also required Iowa's 19 largest cities to submit detailed industrial pretreatment programs for approval. All 19 have been approved and each city

Acres of lakes and reservoirs	81,400 acres	Total area of the 282 lakes described above.
Acres of fresh-water wetlands	35,000 acres	(Reference: DNR, 1987a)

The extent to which Iowa surface waters meet the goals of the Clean Water Act was based on the degree of support of designated uses. Therefore, only waters assessed as fully or partially supporting uses meet the goals of the CWA. Impairment information was entered into a computerized data management system. This system was used to generate the numbers in the tables in this section. Tables 3-10 through 3-13 summarize statewide data on surface waters for various parameters.

A detailed report of assessment methodology for surface waters is contained in the DNR report entitled "Methodologies for Assessing Use Support of Surface Waters."

2. WATER QUALITY SUMMARY

The current DNR water quality standards are assumed to reflect the appropriate use designations for all surface waters in Iowa. The surface waters of Iowa, including all streams, rivers, and publicly-owned lakes and reservoirs (excluding farm ponds), are classified into one, or a combination of, four categories: General Class, Class A, Class B, and Class C. Segments designated for neither fishable (Class B) nor swimmable (Class A) uses (i.e., general class waters) have naturally occurring physical limitations that preclude fishable or swimmable uses. Segments designated for only one of the Clean Water Act goals also have naturally occurring physical limitations that preclude a fishable or swimmable use. For example, swimmable (Class A) uses are not attainable on segments classified only for fishable (Class B) uses (Table 3-6).

According to guidelines for the 1988 305(b) report (U.S EPA 1987a: 28), support of Clean Water Act goals is a separate and independent criterion from the degree of support of designated uses. However, since the state's Class A and Class B water use designations are intended to protect for swimming and fishing uses, respectively, conducting a separate evaluation to determine support of Clean Water Act goals was not considered necessary. Instead, the degree to which the surface waters of Iowa meet the goals of the Clean Water Act was determined on the basis of support of designated uses from both the "monitored" and "evaluated" assessments. The example cited in EPA's 305(b) guidance indicates that a waterbody should only be determined to "not support" Clean Water Act goals if fishing or swimming uses are severely impacted (example cites fishing advisories, consumption bans, or high incidences of fish abnormalities as conditions justifying a finding of nonsupport of the fishable goal). Since this severity of impact does not exist in waters determined to be "fully supporting" or "partially supporting" Iowa's Class A or Class B uses, these waters were considered to support CWA goals, rather than being placed in the nonsupport category. Waters assessed as "not supporting" designated uses will be considered as not supporting the Clean Water Act goals (see Table 3-1).

TABLE 3-8 ACRES OF DESIGNATED IOWA WETLANDS ATTAINING CLEAN WATER ACT GOALS

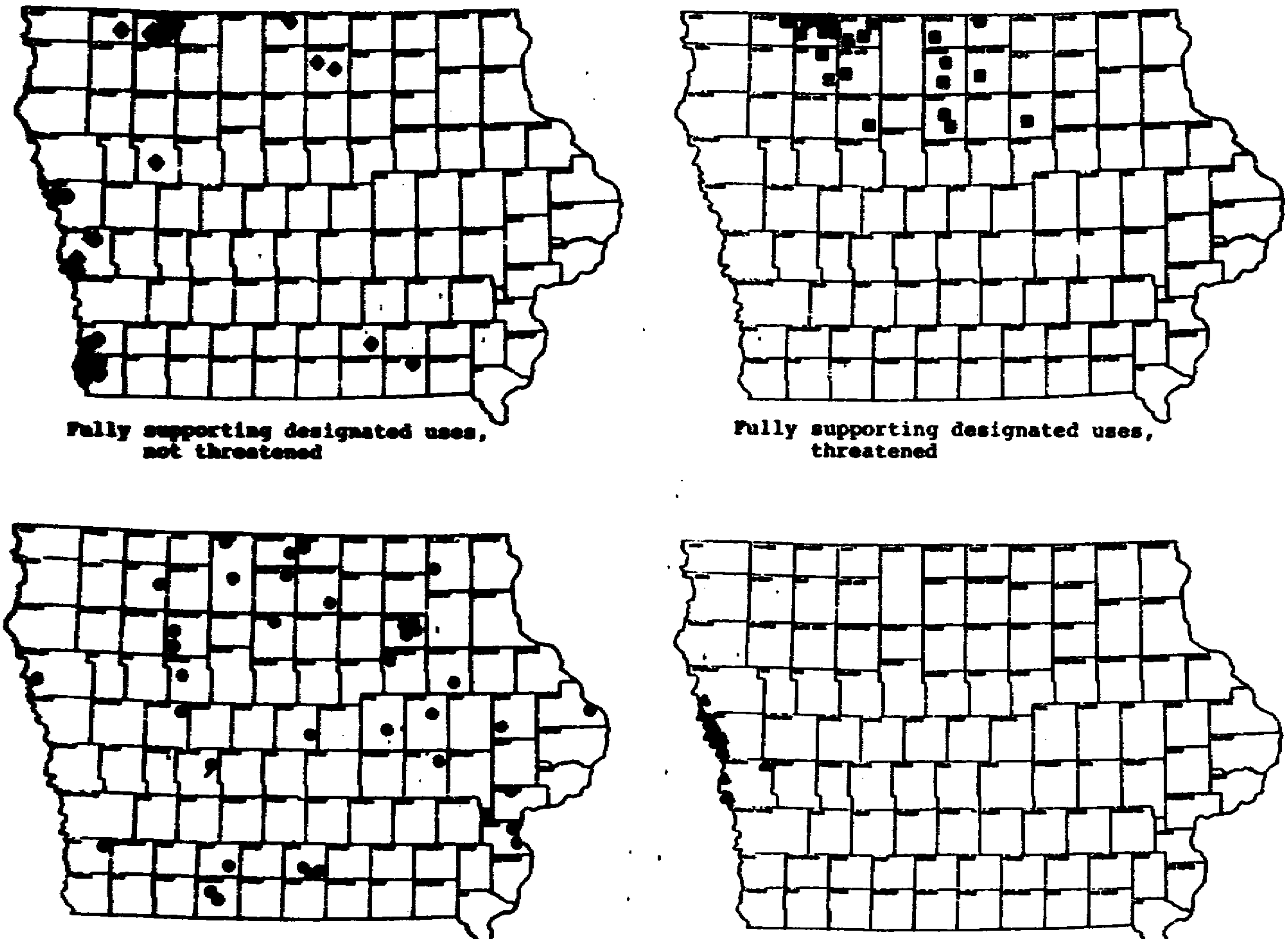
Goal Attainment	Fishable Goal	Swimmable Goal
Acres meeting	22,552	4,572
Acres not meeting	3,640	1,693
Acres not attainable	0	19,927*
Total	26,192	26,192

* Does not include 849 designated wetland acres that were not assessed.

TABLE 3-9 ACRES OF IOWA FLOOD CONTROL RESERVOIRS ATTAINING CLEAN WATER ACT GOALS

Goal Attainment	Fishable Goal	Swimmable Goal
Acres meeting	31,700	31,700
Acres not meeting	0	0
Acres not attainable	0	0
Total	31,700	31,700

Figure 3-3. Iowa wetlands assessed from October, 1985 through September, 1987.



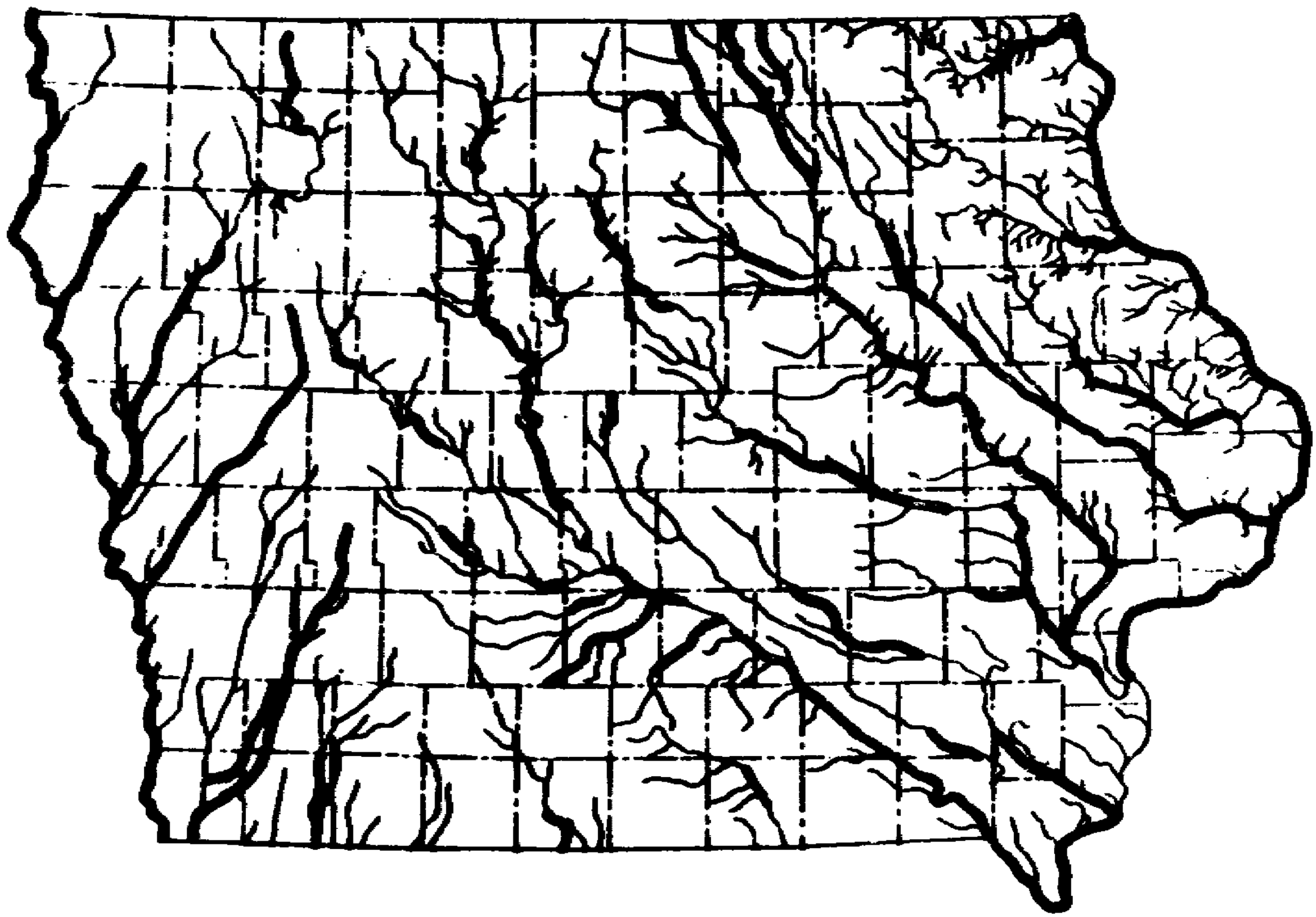
Fully supporting designated uses, not threatened

Fully supporting designated uses, threatened

Partially supporting designated uses

Not supporting designated uses

Figure 3-8. Iowa stream segments assessed as having impacts due to natural causes*.



*Causes shown are for all waters in which use evaluation was determined to be fully supporting/threatened, partially supporting, or not supporting.

nutrients to streams and also indicates that nutrients seldom directly cause severe impacts on streams. At low flow conditions in the warm summer months, the high levels of nutrients may lead to depletion of dissolved oxygen through excessive rates of aquatic respiration, thus resulting in a fish kill. This type of fish kill accounted for six of the 45 kills reported on streams during the last two years. All six fish kills occurred in the months of July and August, and most occurred on small, headwater streams.

METALS

The metals mercury and copper were identified as major impacts on approximately 28 percent of the stream miles assessed as not fully supporting designated uses, while only three percent of the miles were assessed as having moderate/minor impacts from these metals. These impacts were primarily attributed to industrial and municipal point sources and to naturally occurring nonpoint sources (e.g., soils and bedrock formations). These were the only metals that violated DNR water quality standards such that less than full support of uses was suggested.

Most of the violations of the standard for mercury were attributed to naturally occurring nonpoint sources, although municipal and industrial point sources were also identified as sources of mercury. Violations of the water quality standard for copper were attributed to municipal and industrial point sources, agricultural nonpoint sources, and naturally occurring nonpoint sources.

Based on assessment criteria provided by U.S. EPA (Table 3-1), mercury and/or copper were often identified as the causes of nonsupport of designated uses. For Class "B" waters, nonsupport suggests that the fish and aquatic life are impacted so that the Class "B" uses cannot be supported.

The DNR water quality standard for mercury is based on the level given in the "Quality Criteria for Water" (U.S.EPA, 1976). This level is based on an estimate by EPA of the concentration in water that could result in levels of mercury in fish tissue greater than the FDA action level of 1.0 mg/kg. Mercury is a common contaminant in Iowa fish and levels in fish tissue are generally well below the FDA action limit. Only one sample of fish tissue from Iowa waters analyzed in the last five years contained a level of mercury greater than the FDA action limit. This sample was collected from the Cedar River downstream from Charles City in 1984. Subsequent monitoring has indicated lower levels of mercury at this location.

PESTICIDES

Although identified as a major impact on only seven percent of the stream miles assessed as not fully supporting designated uses, pesticides were identified as causing moderate/minor impacts on 92 percent of the miles assessed. This large percentage reflects the managed as wetlands. The hydrological modification of the Missouri River for commercial navigation (i.e., channelization and construction of wing dams and revetments) led to increases in channel gradient and water velocity that have caused the riverbed to degrade. This degradation has resulted in lowering of the water table in the adjacent flood plains, and many oxbow lakes are "perched" above the water table. Water from these wetlands tends to seep toward the river, and maintenance of a sufficient water level becomes a serious management problem.

UNKNOWN TOXICITY

One wetland, Elk Creek Marsh in Worth County, was assessed as having moderate/minor impacts due to unknown toxicity attributed to land disposal. This wetland accounted for 4 percent of the wetland acres assessed as not fully supporting designated uses.

4. FLOOD CONTROL RESERVOIRS

All four flood control reservoirs in Iowa--Saylorville, Red Rock, Coralville, and Rathbun--are impacted to some degree by siltation, nutrients, and pesticides (see Table 3-13). By their design and location, the flood control reservoirs in Iowa serve as traps for sediment and associated pollutants eroded from farmland. That is, these reservoirs are located on major interior rivers in Iowa and drain up to 6,500 square miles of primarily agricultural land.

SILTATION

All four reservoirs were assessed as having major water quality impacts due to siltation from agricultural nonpoint sources. Loss of storage capacity in the conservation pool is a serious problem on all reservoirs. The useful life of these reservoirs was overestimated, and corrective measures (e.g., raising the level of the conservation pool) have been considered to regain the storage capacity lost to sediment at Red Rock and Coralville reservoirs.

NUTRIENTS

Red Rock Reservoir was identified as having major impacts related to nutrients, primarily phosphorus and nitrogen. The sources of these nutrients were identified as agricultural nonpoint sources and municipal point sources. The other three reservoirs were assessed as having moderate/minor impacts due to nutrients.

Red Rock Reservoir is located on the Des Moines River approximately 35 miles downstream from the city of Des Moines. This reservoir has the largest drainage area of any Iowa flood control reservoir. In addition to the drainage of the upper Des Moines River, the

TABLE 3-11

Causes and sources of impacts on water quality of lakes in Iowa assessed as not fully supporting uses for the period October 1985 through September 1987. Percentages of the total lake acres assessed (48549) are included in parentheses.

Cause Categories	Lake Acres With Impacts: Major Impact	Moderate/minor Impact	Total
Unknown toxicity	0	7 (<1%)	7 (<1%)
Pesticides	0	17700 (36.5%)	17700 (36.5%)
Nutrients	8648 (17.8%)	12978 (26.7%)	21626 (44.5%)
pH	1 (<1%)	0	1 (<1%)
Siltation	14412 (29.7%)	2268 (4.7%)	16680 (34.4%)
Organic enrichment	44 (<1%)	6415 (13.2%)	6459 (13.3%)
Flow alteration	10 (<1%)	0	10 (<1%)
Other habitat alterations	222 (<1%)	0	222 (<1%)
Oil and grease	0	5083 (10.5%)	5083 (10.5%)

From 1983 through 1987, 45 samples of channel catfish fillets from 25 monitoring stations were analysed for toxic substances as part of U.S. EPA-sponsored monitoring in Iowa. This monitoring has shown that samples of channel catfish fillets commonly contain chlordane, dieldrin, PCB's, metabolites of DDT, Treflan, and the metals cadmium and mercury. Levels of pesticides in fish from streams and rivers have tended to be higher than levels in fish from lakes. The pesticides chlordane and dieldrin, and PCB's, are the toxics in fish tissue most likely to occur at levels of concern.

CHLORDANE

Levels of technical chlordane averaged approximately 0.200 mg/kg in the 45 samples of channel catfish fillets collected at 25 locations for U.S. EPA-sponsored monitoring in Iowa between 1983 and 1987. Chlordane has been found in 90 percent of the samples of channel catfish fillets, and the highest levels of chlordane tend to occur in and immediately downstream from several of the larger urban areas in Iowa.

High levels of chlordane were first identified in Iowa fish from the Cedar River at Cedar Rapids in 1982. Additional sampling in 1983 and 1984 confirmed the high levels of chlordane. An intensive study in 1985 (Kennedy and Splinter, 1985) demonstrated that chlordane levels in samples of channel catfish fillets from the Cedar River were below the FDA action level. Levels in fish from Cedar Lake, a privately-owned impoundment in Cedar Rapids were, however, well above the FDA action level. Due to these high levels, a consumption advisory was issued in March, 1986, by the owner of the impoundment in cooperation with the city of Cedar Rapids, the Linn County Department of Health, and the DNR. Subsequent monitoring has shown that relatively low levels of chlordane exist in fish from the Cedar River, and that high levels continue to occur in fish from Cedar Lake.

Monitoring in 1986 indicated that levels of technical chlordane exceeded the FDA action level in two areas: the Des Moines River near Des Moines, and the Turkey River near Garber. In response to these high levels, the DNR conducted follow-up monitoring in 1987 at these locations. The results showed that levels of chlordane were moderately high in fish from the Des Moines River near Des Moines but that a consumption advisory was not justified. Levels of chlordane in fish from the Turkey River near Garber were less than the limit of detection (0.01 mg/kg).

POLYCHLORINATED BIPHENYLS (PCB's)

Approximately 50 percent of the 37 samples of channel catfish fillets analyzed for PCB's as part of U.S. EPA-sponsored monitoring between October, 1982 and September, 1987 contained PCB's. Occurrence of PCB's in fish tissue appears to be related to the level of PCB's that industrial activities release to the environment.

TABLE 3-15 (CONTINUED)
REPORTED FISH KILLS IN IOWA
FROM OCTOBER 1985 THROUGH NOVEMBER 1987
BY MAJOR RIVER BASIN

Stream Name	Date Kill Observed	No. of Fish	Area Affected	Suspected Pollutants	Suspected Source of Pollution
NORTHEASTERN RIVER BASIN					
BREMER COUNTY:					
Unnamed Creek	8-Aug-87	600			Low Dissolved Oxygen
BUCHANAN COUNTY:					
Wapsipinicon R. above dam	11-Aug-86	>100			Bacterial Infection
CHICKASAW COUNTY:					
Shankley Pond	27-Apr-87				Fertilizer
CLINTON COUNTY:					
Clear Creek	1-Mar-87	1200	2.5 mi	NaCN	Chemical Company
DELAWARE COUNTY:					
Hartwick Lake	4-Aug-86	30			Disease
Unnamed Creek	27-Aug-86				Low Dissolved Oxygen
DUBUQUE COUNTY:					
16th Street Basin in Dubuque	5-Feb-86	>2000			Fluctuating Water Temp.
Ice Harbor in Dubuque	4-Feb-86	>200		NH3-N, Oil	Refrigeration Unit Spill
Mississippi R. Backwater in Dubuque	1-Jun-87	21			Industrial Discharge
HOWARD COUNTY:					
Staff Creek	15-Jul-86	400			Unknown
JACKSON COUNTY:					
Brush Creek	23-Sep-86				Unknown
JONES COUNTY:					
Wapsipinicon River	10-Aug-87	270	250 ft.		Unknown
Unnamed Creek	15-Sep-87				Unknown
LOUISA COUNTY:					
Lake Odessa	30-Jul-87	800			Warm Water Temperature

Table 3-17. Example of waterbody-specific information for two stream segments in Iowa. Segment 19 (English River, mouth to confluence with South English River) is divided into two subsegments.

305b Assessment Results for Stream Segments in the Iowa-Cedar Basin   [illegible]

Segment No: 19   Stream Name: English R.   Basin: Iowa-Cedar   Subbasin: Iowa River   Length: 40.6 miles   Region: 6   Designated Use(s): B(w) [illegible]

Description: (South Washington Co.) to confluence with S. English R. (Washington County, Section 6, T77N, [illegible]

Subsegment No: 1   Downstream Mile Point: 0.0   Subsegment Length: 24.9 miles   Assessment Date: 08/13/88   Assessment Type: 305b   Assessment Level: Evaluated

Subsegment Description: From mouth to 10 miles upstream from bridge on S 1/2, [illegible], T77N, [illegible], at Kalona.

Support of Designated Uses: Overall Use: Partially supported   Class B Uses: Partially supported   CWA Goal Status: Fishable Goal: Not   Swimmable Goal: Not attainable

Toxics: Standards: Yes   Elevated levels: No   Aquatic Contamination: Monitoring: Yes   Contaminated Tissues: Yes   Consumption Restrictions: No   Abnormalities: No

Causes of Use Impairment: Pesticides (M)   Metals (S)   Nutrients (M)   Siltation (M)

Sources of Use Impairment: Agriculture (M)   Urban Runoff (M)   Natural (S)

Monitoring Stations: [illegible] - At Kalona.   [illegible] - At Riverside.

Subsegment No: 2   Downstream Mile Point: 24.9   Subsegment Length: 15.7 miles   Assessment Date: 08/13/88   Assessment Type: 305b   Assessment Level: Evaluated

Subsegment Description: From 10 miles upstream from bridge on S 1/2, [illegible], T77N, [illegible], at Kalona, to confluence with South English River ([illegible], T77N, [illegible], Washington Co).

Support of Designated Uses: Overall Use: Partially supported   Class B Uses: Partially supported   CWA Goal Status: Fishable Goal: Not   Swimmable Goal: Not attainable

Toxics: Standards: Yes   Elevated levels: No   Aquatic Contamination: Monitoring: No   Contaminated Tissues: No   Consumption Restrictions: No   Abnormalities: No

Causes of Use Impairment: Pesticides (S)   Nutrients (M)   Siltation (M)

Sources of Use Impairment: Agriculture (M)

Monitoring Stations: [illegible] - At Riverside.

Segment No: 20   Stream Name: S. English R.   Basin: Iowa-Cedar   Subbasin: Iowa River   Length: 28.6 miles   Region: 6   Designated Use(s): B(w)

Description: (South Washington Co.) to Hwy. 21 [illegible] line of Section 22, T79N, [illegible], Poweshiek Co.)

Subsegment No: 0   Downstream Mile Point: 0.0   Subsegment Length: 28.6 miles   Assessment Date: 08/13/88   Assessment Type: Both   Assessment Level: Evaluated

Support of Designated Uses: Overall Use: Partially supported   Class B Uses: Partially supported   CWA Goal Status: Fishable Goal: Not   Swimmable Goal: Not attainable

Toxics: Standards: No   Elevated levels: No   Aquatic Contamination: Monitoring: No   Contaminated Tissues: No   Consumption Restrictions: No   Abnormalities: No

Causes of Use Impairment: Pesticides (S)   Nutrients (M)   Siltation (M)

Sources of Use Impairment: Agriculture (M)

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aquifers. Although this survey failed to take into account such factors as temporal variation and nearby land use, as well as potential confounders such as chemical spills, underground storage tanks, or nearby agricultural chemical dealerships, it does confirm the ability of pesticides and SOC's to contaminate groundwater sources.

(b) The National Cancer Institute and the U.S. EPA are co-sponsoring a case-control cancer and water study throughout the state of Iowa. The study is being conducted by the Department of Preventive Medicine at the University of Iowa in cooperation with the DNR and State Health Registry of Iowa. As part of this effort, water samples of all municipal drinking water supplies in towns with a population of more than 1,000 people were sampled and tested for fecal coliform bacteria, trihalomethanes and nitrates. A random sample of small supplies were also tested for the presence of pesticides and SOC's. Several contaminants were found both in ground and surface drinking water supplies throughout the state. Specific results are pending the completion of analysis by study investigators. The analysis of these data will take into account historical water information, land use, specific water treatment, and any confounders that are pertinent. The water sampling was done only during the summer months of 1987, in an attempt to limit the effects of seasonal variations on test results.

B. SOURCES OF GROUNDWATER CONTAMINATION

Contaminants threatening the groundwater in Iowa have been assigned a priority ranking based on their relative importance as agreed upon among water resource professionals, interested parties, and the general public. Table 4-1 shows the relative priority ranking of major sources of groundwater contaminants. Priority I contaminants are considered by most Iowans as the most serious sources of contamination. Priority II sources are already regulated, but deserve continued attention. Priority III sources are actually physical entities rather than sources which allow or promote contamination. Priority IV sources are generally subjected to extensive rules though not specifically to protect groundwater.

WATER QUALITY IN IOWA DURING 1986 AND 1987

April 1, 1988

Prepared by the
Iowa Department of Natural Resources
Environmental Protection Division
Water Quality Planning Section

is now controlling, through an agreement with local industries, the quantity and concentration of pollutants which it will receive from a contributing industry for treatment. One additional city has also been directed to develop and implement the industrial pretreatment program.

DNR also issues National Pollution Discharge Elimination System (NPDES) permits to regulate point source pollution discharges from municipal, industrial, and semi-public wastewater treatment plants throughout Iowa. These permits limit quality and quantity of effluent that may be discharged into streams and mandate specific monitoring requirements for the discharges.

The state program regarding specific wasteload allocations for each municipal and industrial facility which continuously discharges wastewater into Iowa streams was recently expanded. Wasteload allocations are to be set for all toxic pollutants which are being discharged into Iowa's "general" classified and class "B" streams. Additional emphasis is being placed on preventing both acutely and chronically toxic conditions in all receiving streams and beyond the mixing zone on designated streams.

Enforcement of permit effluent limits is an ongoing effort among DNR field office staff. During the reporting period, 113 administrative orders were issued to facilities which violated permit effluent limits and water quality standards during the reporting period. In addition, 17 cases were referred to the Iowa Attorney General for further legal action.

LAKE POLLUTION CONTROL PROGRAM

Due to their importance as natural and recreational resources of the state, a number of activities are being carried out to protect and enhance Iowa's lakes. Direct discharge of pollutants, treated or untreated, into state-owned lakes is prohibited. Any pollution of a lake or its tributary streams by animal wastes is addressed by DNR according to Chapter 567-65 of the Iowa Administrative code.

Most of Iowa's lake water quality problems can be attributed to agriculturally-related nonpoint source pollution. Siltation from soil erosion is the primary concern. Since 1979, projects to control watershed soil erosion and improve lake water quality have been initiated for at least 19 Iowa lakes. Projects have been funded by local, state, and federal sources.

Urban runoff, construction site runoff, land disposal of wastes, and hydrologic or habitat modification also pose threats to lake water quality in Iowa, though to a much lesser degree.

NONPOINT SOURCE WATER POLLUTION CONTROL PROGRAM

The state has been addressing nonpoint pollution since 1975 when Iowa began to conduct statewide water quality planning. Major emphasis was placed on development of a program to control pollution of streams and lakes by agricultural nonpoint sources (i.e., agricultural runoff). In 1979, a state agricultural nonpoint control strategy was developed. This strategy emphasized control of sediment, which is the greatest pollutant, by volume, of Iowa's

B. SUMMARY OF DESCRIBED USES

Table 2-2 gives the total length or area of waters which fit the described uses in the 305(b) guidance. Also included in the table are the Iowa Water Quality Standards Classifications (i.e. Class A, Class B, etc.). The total stream miles given in the table are only for those streams draining a watershed of five or more square miles. The size totals given for wetlands with the use designations Class A, B, C, HQ and HQR represent waterbodies that are listed as lakes in the water quality standards. The reservoirs represented in the table are the four U.S. Army Corps of Engineer reservoirs in Iowa: Coralville, Rathbun, Red Rock and Saylorville reservoirs. These four large impoundments have been assessed as a separate category due to characteristics that distinguish them from smaller lakes and from rivers.

TABLE 2-2

Described Use	Water Quality Stds. Class[1]	SIZE Stream Miles	Lake Acres	Reservoir Acres	Wetland Acres
Fish & Aquatic Wildlife	Class B	8,300	48,900	31,700	27,000
Domestic water supply	Class C	17[2]	20,700	0	300
Recreation:					
- primary contact	Class A	2,220	46,600	31,700	6,280
- secondary contact only	Class B	6,100	2,340	0	20,800
- noncontact	general	18,300[3]	49,700	31,700	35,000
Agriculture[4]	general	18,300[3]	49,700	31,700	35,000
Industrial[4]	general	18,300[3]	49,700	31,700	35,000
Navigation[4]	general	18,300[3]	49,700	31,700	35,000
Nondegradation:					
- chemical	HQ	311	11,000	0	0
- physical, chemical, & biological	HQ, HQR, Mississippi R. & Missouri R.	2,370	20,300	11,000	2,250
- existing water uses	general	18,300[3]	49,700	31,700	35,000
Unclassified	none	0	0	0	0

1 - See next page.

2 - This number represents 17 one mile class "C" segments.

3 - Best available estimate of the total number of stream miles in Iowa.

4 - See next page.

Support of designated uses for Iowa surface waters is summarized in tables 3-2 through 3-5 and in figures 3-1 through 3-3 found in Section 3.B. The degree to which Iowa surface waters meet the goals of the Clean Water Act is summarized in tables 3-6 through 3-9.

Figure 3-1-a. Iowa stream segments assessed from October 1985 through September, 1987 as fully supporting designated uses.

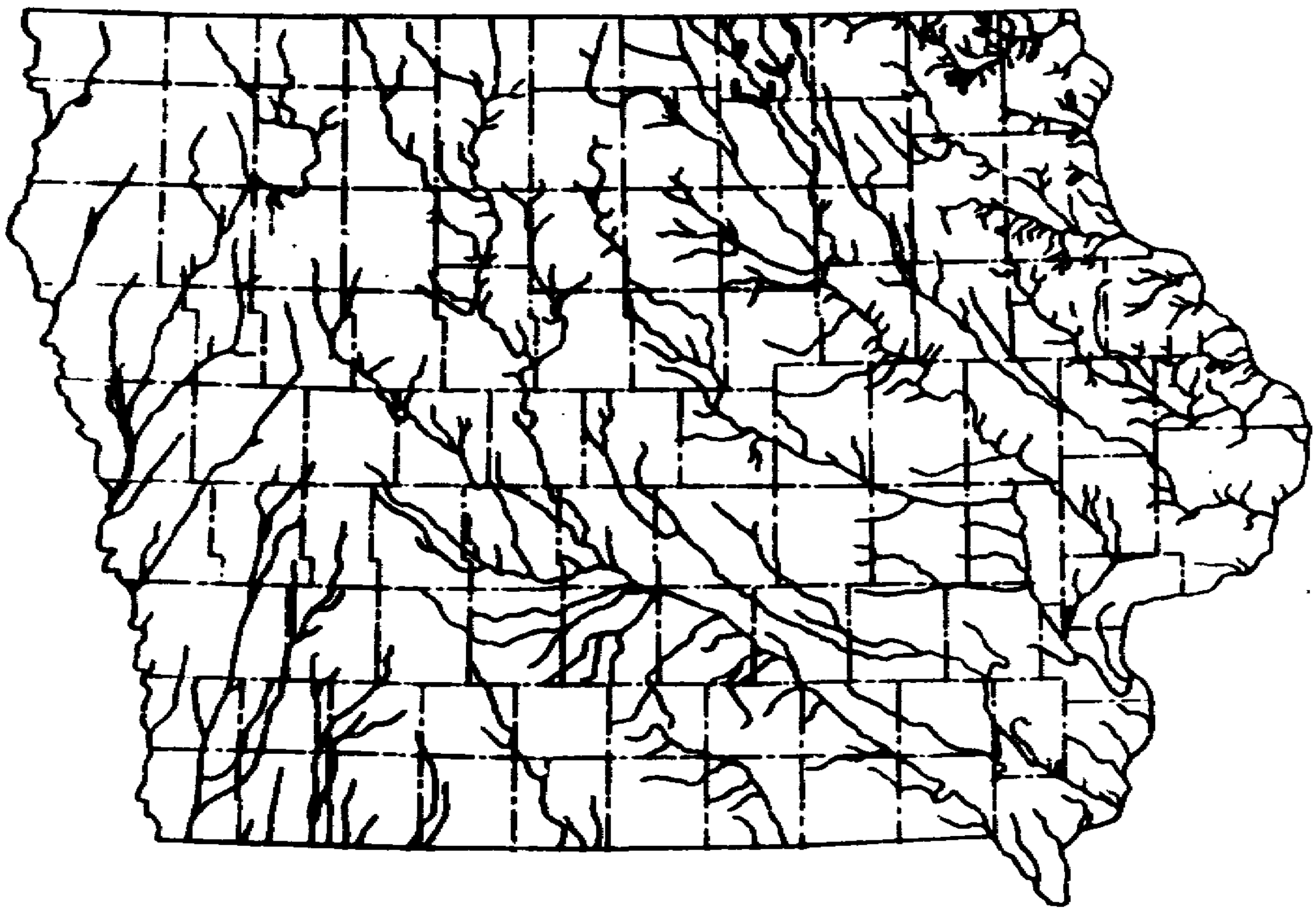
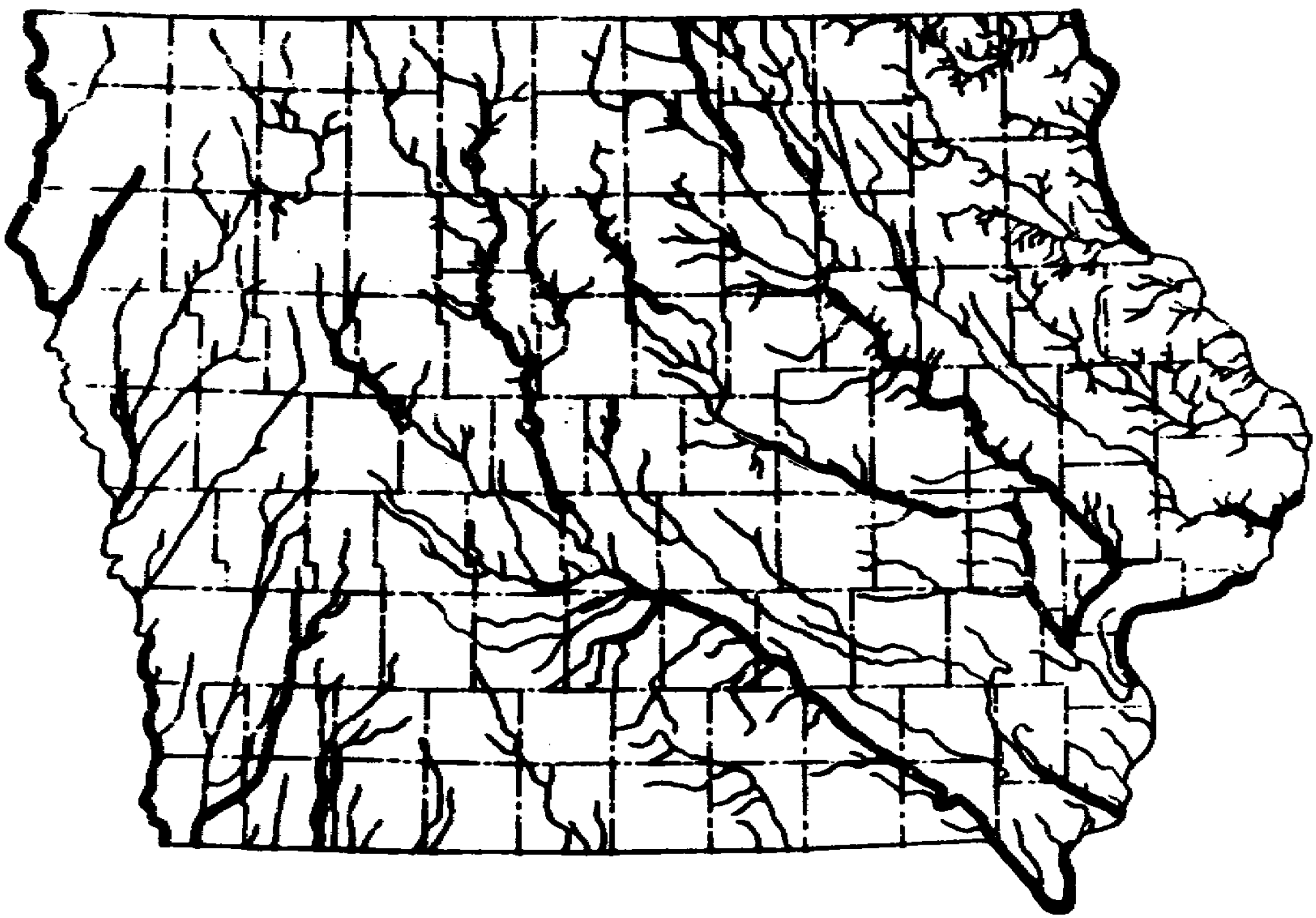
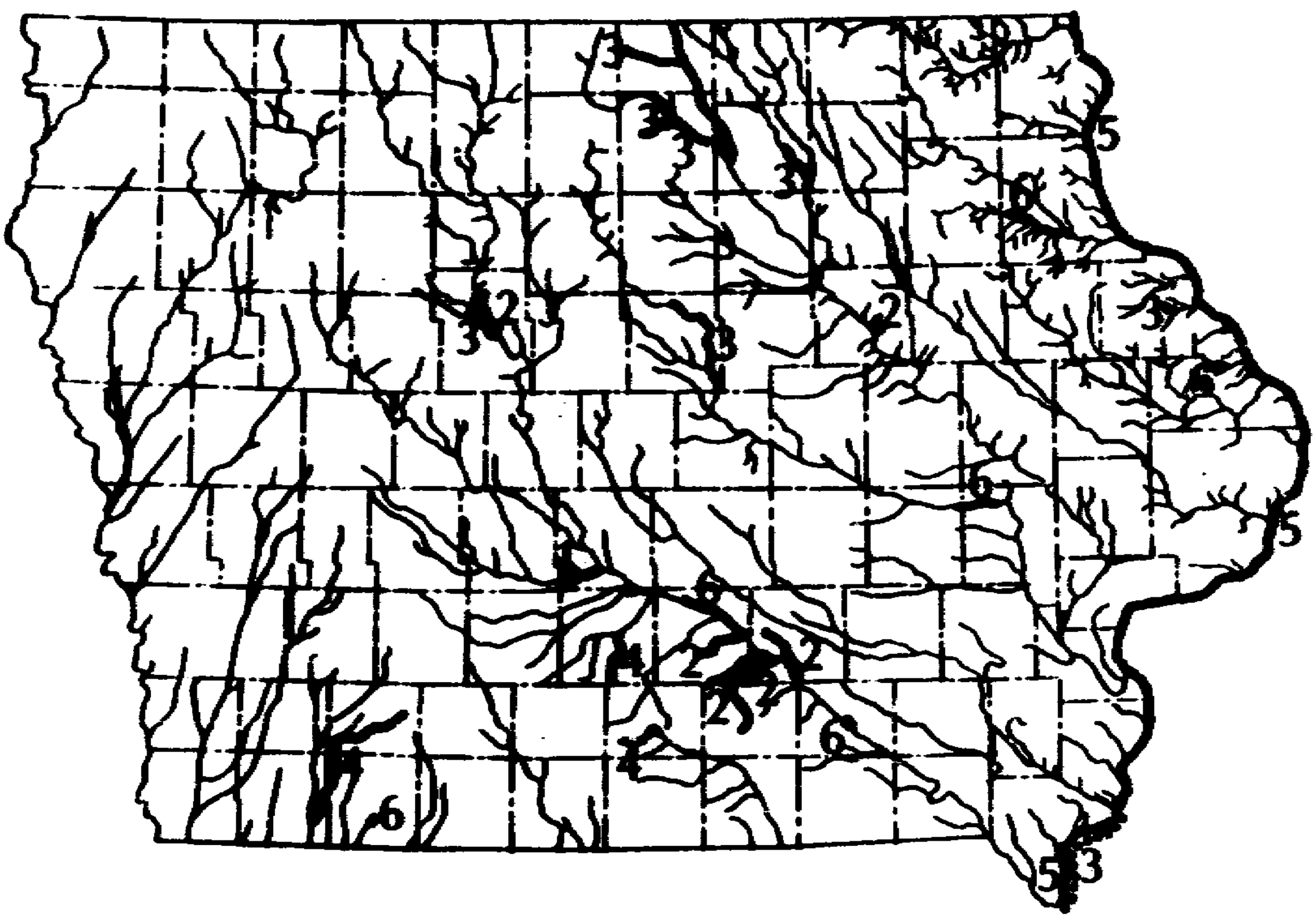


Figure 3-4. Iowa stream segments assessed as having impacts due to discharges from municipal wastewater treatment facilities*.



*Sources shown are for all waters in which use evaluation was determined to be fully supporting/threatened, partially supporting, or not supporting.

Figure 3-9. Nonpoint impacts from other than agricultural nonpoint sources on Iowa stream segments assessed from October, 1985 through September, 1987.



1 Construction

2 Resource extraction

3 Land disposal

4 Hydrological modification

5 Navigation

6 Other nonpoint sources

widespread use of agricultural pesticides throughout the state and a concern that low concentrations of pesticides may impair water quality in ways that are not well understood. The most frequently detected pesticides in Iowa surface waters are some of the most commonly used agricultural pesticides in Iowa: alachlor (Lasso), atrazine (Aatrex), carbofuran (Furadan), cyanazine (Bladex), and metolachlor (Dual).

Based on monitoring conducted from 1983 through 1987, approximately 700 stream miles were assessed as impacted by pesticides that were detected in fish tissue samples. The DNR monitors fish tissue for residues of selected pesticides and other toxic compounds that are infrequently detected in water samples. The pesticides identified as causing impacts due to levels in fish tissue are, in general, lipid-soluble organochlorine insecticides that have been banned from general use for several years. These include chlordane (and several constituents and metabolites), dieldrin, and the metabolites of DDT (i.e., DDD and DDE).

In addition, trifluralin (Treflan), a widely-used agricultural herbicide, was first analyzed for and detected in Iowa fish in 1986. Treflan was detected in approximately 50 percent of the samples of channel catfish fillets collected for the 1986 Regional Ambient Fish Tissue Monitoring Program (RAFTMP) in Iowa. Treflan was detected at six of the 14 sites monitored for the 1986 RAFTMP. Treflan is more stable and lipid-soluble than most other agricultural pesticides currently used in Iowa. An FDA action level has not been established for this pesticide.

PATHOGENS

Fecal coliform bacteria are monitored to indicate the level of pathogens in Iowa surface waters. Fecal coliform bacteria were identified as major impacts on 54 percent of the miles assessed for support of Class "A" uses. Swimming, water skiing, and other primary body contact recreation that involves considerable risk of ingesting surface water are designated for Class A uses. Agricultural nonpoint sources and discharges from municipal wastewater treatment facilities were identified as the primary sources of impacts due to fecal coliform bacteria.

These bacteria are commonly found in Iowa streams and rivers at levels that exceed the state water quality standard (200 organisms per 100 ml) for Class A waters. All 20 monitoring stations on Class "A" waters with sufficient data to make a "monitored" assessment had data for fecal coliforms that indicated nonsupport of designated uses. No incidences of waterborne diseases have been reported for persons using these waters for primary contact recreation. However, since reports of diseases related to waterborne bacteria are not routinely collected, underreporting of these illnesses is possible.

drainages of the Raccoon, North, Middle, and South rivers contribute large amounts of nutrients eroded from farm fields. Treated wastewater from the city of Des Moines also contributes nutrients to the Des Moines River that cause nutrient-related impacts on Red Rock Reservoir.

PESTICIDES

Although no reservoirs were assessed as having major impacts due to pesticides, all were assessed as having moderate/minor impacts due to pesticides. Their presence was attributed to agricultural nonpoint sources.

Analysis of fish tissue samples has shown that chlordane, dieldrin, and the metabolites of DDT (DDE, DDD) are commonly found in fish in flood control reservoirs in Iowa. In general, the presence of these pesticides in fish is due to use of these chemicals as agricultural insecticides in the 1960s and 1970s. The occurrence of chlordane in Iowa fish, however, has been attributed to use of chlordane for control of termites in residential areas. During the 1982 to 1985 period, levels of pesticides in fish from Iowa reservoirs have not exceeded guidelines established by the U.S. Food and Drug Administration for human consumption of fish.

ORGANIC ENRICHMENT/DISSOLVED OXYGEN

Red Rock Reservoir was the only flood control impoundment identified as having impacts related to organic enrichment. This reservoir was assessed has having moderate/minor impacts attributed to the wastewater treatment facility for the city of Des Moines. That is, the treated wastewater from this facility contributes organic materials that can cause decreases in the levels of dissolved oxygen in the reservoir. The other three reservoirs are located upstream from urban areas that could serve as sources of organic enrichment.

PATHOGENS

Monitoring for fecal coliform bacteria is conducted at swimming beaches on Saylorville, Coralville, and Red Rock reservoirs as part of routine water quality monitoring sponsored by the US Army Corps of Engineers. Coralville and Red Rock reservoirs were assessed as having major impacts due to pathogens. Monitoring has indicated that levels of fecal coliform bacteria commonly exceed the state water quality standard at swimming beaches in these two reservoirs. The high levels of bacteria were attributed to agricultural nonpoint sources, municipal point sources (i.e., wastewater treatment facilities), and to activities of recreational users of these areas. High levels of fecal coliform bacteria have not resulted in reported cases of waterborne disease for those using these surface waters for swimming, water skiing, and other Class A activities. However, reports of waterborne illness are not routinely collected and could

TABLE 3-11 (Continued)

Source Categories	Lake Acres With Impacts		
	Major Impact	Moderate/minor Impact	Total Miles
Nonpoint sources			
Agriculture	16564 (34.1%)	3774 (7.8%)	20338 (41.9%)
Construction	12 (<1%)	0	12 (<1%)
Urban runoff	4822 (9.9%)	2129 (4.4%)	6951 (14.3%)
Land disposal	7 (<1%)	0	7 (<1%)
Hydrological modification	229 (<1%)	0	229 (<1%)
Natural	852 (1.8%)	0	852 (1.8%)
Other	46 (<1%)	0	46 (<1%)

Monitoring conducted near Davenport, Iowa, in Pool 15 of the Mississippi River (U.S. EPA, 1987b), showed high levels of PCB's in samples of carp fillets. Although PCB's were detected at all sampling stations in the study, the levels in fish taken at Riverdale, Iowa, were greater than FDA action levels. The DNR is working with the U.S. EPA, and the U.S. Fish and Wildlife Service to determine the most appropriate response to this contamination problem.

DIELDRIN

Levels of dieldrin in samples of channel catfish fillets have averaged approximately 0.140 mg/kg, approximately 45 percent of the FDA action level of 0.300 mg/kg. Dieldrin has been found in 87 percent of the samples of channel catfish fillets collected and analyzed for toxics since 1983. Levels of dieldrin in Iowa fish appear to have declined since the the 1970s when levels commonly exceeded the FDA action level.

The only recent sample with relatively high levels of dieldrin was collected in 1986 from the East Nishnabotna River near Atlantic. This sample of channel catfish fillets contained a level of 0.31 mg/kg dieldrin, slightly greater than the FDA action level of 0.300 mg/kg. Additional monitoring was conducted at this location in 1987 to confirm this high level, but the results are not yet available.

GENERAL TRENDS IN TOXICS CONTAMINATION

An evaluation of trends in water quality parameters, including toxics, is scheduled for the 1990 Water Quality Report. No obvious changes in levels of toxics in surface waters have occurred. Mercury and copper are the toxics that most commonly exceed the respective DNR water quality standard. Although this report identifies more miles of streams as impacted by mercury and copper than previous 305(b) reports, the levels of these metals in the environment probably have not changed. The increase in miles reported as impacted by mercury and copper is due to changes in methods of data analysis and assessment for this report.

Levels of some pesticides in fish tissues (e.g., dieldrin, DDE, and heptachlor epoxide) have tended to decline over the last five years, while other contaminants (e.g., chlordane and PCB's) have not demonstrated observable trends. Mercury is a common contaminant of Iowa fish, although levels are well below the FDA action level.

FISHING ADVISORIES CURRENTLY IN EFFECT

The DNR has not issued advisories or bans against fishing or consumption of fish from publicly-owned Iowa waters. Although monitoring has shown that relatively high levels of toxic substances occasionally occur in Iowa fish, the follow-up monitoring to confirm

TABLE 3-15 (CONTINUED)
[illegible] FISH KILLS IN IOWA
FROM [illegible] 198[illegible] THROUGH [illegible] 1987
BY MAJOR RIVER BASIN

Stream Name	Date Kill Observed	No. of Fish	Area Affected	Suspected Pollutants	Suspected Source of Pollution
[illegible] RIVER BASIN					
APPANOOSE COUNTY,					
Fish Hatchery	26-Apr-87				Unknown
SKUNK RIVER BASIN					
HENRY COUNTY,					
Big Creek - [illegible] Creek	18-Jun-87		3-8 mi	[illegible]	Low Flow- Unknown
JEFFERSON AND HENRY COUNTY,					
Wolf Creek	13-Mar-87				Feedlot
MAHASKA COUNTY,					
Private Farm Pond	14-Aug-86				Low Dissolved Oxygen
[illegible] RIVER BASIN					
CLAY COUNTY,					
Prairie Creek	19-May-87				Unknown
[illegible] COUNTY,					
[illegible]'s Ditch	4-Aug-87	>100000			Blue Green Algae
[illegible] COUNTY,					
Turtle Creek	10-Jun-87	60000	4.2 Ac	Liquid N	Tank Spill
O'BRIEN COUNTY,					
South Branch Little Floyd	10-Aug-86				Feedlot

2. WATER QUALITY LIMITED STREAMS

An additional assessment result relevant to stream waterbodies concerns limitations that have been established for wastewater dischargers. If water quality modeling of a stream indicates that the proposed effluent loadings would result in violations of state water quality standards, then the discharger(s) is required to apply a higher level of treatment than the minimum established by state or federal criteria for "best available technology economically achievable" (BAT). Thus, for these streams the effluent limitations are based on water quality standards rather than BAT. These streams are referred to as being water quality limited. For detailed information on water quality limited streams, see Appendix A.

3. SECTION 304(l) TOXICS LISTING

The Clean Water Act Amendments require an assessment of toxic and conventional pollutant impacts on receiving stream uses. This federal requirement, termed "Section 304(l) Toxics Listings", assesses stream segments through stream impacts. Both point sources and nonpoint sources of pollutants impacting stream uses are included in the three toxics lists; i.e., long, mini and short lists.

The long list includes water bodies whose uses are known or suspected to be impaired, or whose water quality criteria (toxic and conventional) are exceeded by point and/or nonpoint sources. The mini list notes waterbodies with use impairment due to violation(s) of toxic water quality standards from point and/or nonpoint sources. The short list contains waterbodies with known or suspected use impairment by violation of toxic water quality criteria from point sources only.

The preliminary listings are included in Appendix B. As noted for water quality limited segments, these toxics listings are not included in the waterbody-specific information because of differences in segment definitions.

Table 4-1. SOURCES OF GROUNDWATER CONTAMINATION
(Iowa Groundwater Protection Strategy, 1987)

Source	Check	Relative Priority (I-Highest)
Abandoned hazardous waste sites	X	I
Agricultural activities	X	I
Municipal Landfills	X	II
On-site industrial landfills (Excluding pits, lagoons, surface impoundments)	X	II
Other landfills	X	II
Storage handling and transportation of hazardous substances	X	II
Underground storage tanks	X	II
Abandoned wells	X	III
Agricultural drainage wells	X	III
Sinkholes	X	III
Land application/treatment	X	IV
Septic Tank Leaching Fields	X	IV
Surface impoundments (excluding oil and gas brine pits)	X	IV
Urban use of nitrogen fertilizer and pesticides	X	IV
Injection wells (incl. Class V)	N	
Oil and gas brine pits	N	
Regulated hazardous waste sites	N	
Road salting	N	
Salt water intrusion	N	

N = Not known to be a problem in Iowa at this time.

C. SUBSTANCES CONTAMINATING IOWA GROUNDWATER

Table 4-2 identifies specific pollutants or general types of compounds that have been found in Iowa's groundwater resulting from one or more of the sources listed in Table 4-1. The substances identified in Table 4-2. are not an all inclusive listing of groundwater contaminants in Iowa. Neither does Table 4-2. indicate the prevalence of these substances in Iowa's groundwater.

Table 4-2. Substances Introduced by Human Activities Which Contaminate Groundwater

- Metals
- Organic chemicals:
  - Volatile
  - Synthetic
  - Pesticides
  - Petroleum products
- Inorganic chemicals:
  - Nitrates
  - Fluorides
  - Arsenic
  - Cyanide
- Bacteria

4. PRETREATMENT PROGRAM

In accordance with federal regulations, every publicly owned treatment works (POTWs) or combination of POTWs operated by the same authority, which has a design flow of 5 million gallons per day or greater and which receives industrial pollutants which pass through untreated or interfere with the operation of the POTW, is required to establish a pretreatment program. Under these regulations, the Department has required the state's 20 largest cities (Table 6-3) to submit detailed pretreatment plans for approval. The goal of the pretreatment program is to have all 20 of these cities and their industries in compliance with state water quality regulations. Each city is now controlling, through an agreement with the industry, the quantity and the concentration of pollutants which it will receive for treatment. The agreements contain requirements for periodic monitoring of the industrial waste contributions to ensure that industrial criteria limits are being met, thus enabling the POTWs to meet their discharge limits to the stream. Each city is required to submit an annual summary of their pretreatment program to DNR, as part of an audit to assure compliance with all federal and state regulations.

Table 6-3 Iowa Cities Administering Pretreatment Programs.

Ames	Fort Dodge
Ankeny	Fort Madison
Burlington	Iowa City
Cedar Falls	Keokuk
Cedar Rapids	Marshalltown
Clinton	Mason City
Council Bluffs	Muscatine
Davenport	Ottumwa
Des Moines	Sioux City
Dubuque	Waterloo

5. WASTELOAD ALLOCATIONS

DNR recently (September, 1987) expanded its program for reviewing and assigning specific wasteload allocations for each municipal and industrial facility which continuously discharges wastewater into Iowa streams. The expanded program now includes setting wasteload allocations for all toxic pollutants discharged into Iowa's "general" class and class "B" streams. Wasteload allocations (WLA) performed by DNR are placing more emphasis on the need for preventing acutely toxic conditions within the mixing zone in all receiving streams. Preventing chronically toxic conditions will continue to be applied beyond the mixing zone on designated streams. This expanded WLA effort will apply to all WLA requests, with implementation directed at preventing acute toxicity at new or improved facilities. The new WLA effort will address all section

As this table shows, a variety of state and federal programs are being used to carry out these projects. Since each funding source has somewhat different administrative and technical requirements, the specific activities conducted and the manner in which projects are administered often vary considerably among projects. Even so, all of the listed projects have certain common features. Reduction of watershed soil erosion is the major means of protecting or enhancing the lake; various structural and/or management practices are used to reduce soil erosion. Cost share or other financial incentives are provided to landowners participating in the projects and county level governmental agencies are used to assist landowners in selection and installation of needed erosion control practices.

Considerable variation exists in the scope of many of these projects. For example, projects funded solely by the state publicly-owned lakes cost share program are normally limited to the installation of soil conservation practices in the lake's watershed, since use of these funds is restricted to that purpose. By comparison, projects funded by EPA's Clean Lakes Program may utilize a variety of pollution control, lake protection, and lake restoration practices. For example, the Union Grove Clean Lakes project involves control of watershed soil erosion, dredging of some lake areas, construction of sediment detention basins in lake inlets, and installation of a lake aeration system.

Although the state hopes to eventually complete watershed erosion control projects for all lakes impacted by siltation from agricultural lands, this will take a number of years to accomplish. In the meantime, efforts are being made to reduce the amount of siltation occurring in uncontrolled lakes. In most cases, this is done by constructing sediment detention structures on tributary streams. However, in some cases other means of reducing sediment loads are being used, including using wetland areas adjacent to lakes as sediment traps, using grassed filter strips along stream channels or lake shoreline to reduce sediment delivery to lakes, and constructing flow control structures on tributary streams (to allow flow to be diverted into or away from the lake, depending upon sediment content). These activities are normally sponsored by the DNR or by county conservation boards, and are funded through a variety of federal, state, and local programs.

NONAGRICULTURAL NONPOINT SOURCES

Although other nonpoint sources do not have the overall statewide impact that agriculture does, such sources have an impact on individual lakes. Identified below are those nonagricultural nonpoint sources considered to be significant in Iowa, along with a brief discussion of the state's approach to dealing with each source.

URBAN RUNOFF - Since most Iowa lakes are located in predominately rural areas, urban runoff is not a major statewide problem for Iowa lakes. However, lakes located in urban areas and lakes include: insufficient watershed area draining into the lake, diversion of a portion of the watershed drainage away from the lake, and lowering of the groundwater table around the lake as a result of drainage or other hydrologic modification activities.

For several of these lakes, water levels have now been stabilized by providing a supplemental water source. Water sources used in these projects include flow from rivers and streams, water from groundwater aquifers, and for one lake, cooling water from a power generation plant.

FISH STOCKING AND RENOVATION

As part of their routine lake management activities, the DNR and county conservation boards carry out an extensive fisheries management program. This program includes monitoring of lake fish populations, stocking of additional fish in lakes (to maintain adequate numbers and species diversity or increase fishing opportunities), and occasionally total renovation of a lake's fishery. The stocking program generally relies upon fish produced in DNR's fish hatcheries, although in certain instances the stocking fish may be obtained from private fish hatcheries or from other bodies of water.

A variety of funding sources are used to support the state's lake restoration activities. Major funding sources include moneys the state receives from the Wallop-Breaux Amendment (formerly the Dingell-Johnson Act), state appropriations, state hunting and fishing license fees, and funds received from other federal programs (such as the Clean Lakes Program) for carrying out specific lake restoration projects.

in place. Under the current law, county soil conservation districts administer its provisions, unless this responsibility has been delegated to a qualified local unit of government. A 1983 evaluation found the sediment control law was working effectively in the more urbanized counties, but that it had little application in rural areas.

At present, no major changes are being planned in Iowa's approach to dealing with construction site runoff.

5. SURFACE MINING

Statewide, about 31,000 acres are included in registered mine sites, and abandoned mine lands cover an additional 27,500 acres. Since this represents less than 0.2 percent of the state's total land area, and most mining activities are conducted at relatively small and scattered sites, surface mining is not considered to pose a major statewide nonpoint pollution problem. Even so, mining activities can cause localized water quality problems.

As a result of pre-1968 coal mining activities, about 11,400 acres of abandoned coal mine land exist in the state. Several monitoring studies conducted during the mid-1970's found that runoff from such sites could cause severe degradation of receiving streams, and thus confirmed the pollution potential of these sites.

Iowa first began requiring active coal mines to reclaim mined areas in 1968, when a state mine reclamation law was enacted. More recently, the Department of Agriculture and Land Stewardship (DALS) assumed responsibility for administering the federal Surface Mining Control and Reclamation Act. This Act requires active coal mines to comply with a number of environmental regulations: obtaining NPDES permits for any water discharges, conducting mining operations in a manner which minimizes environmental hazards, and reclaiming all mined areas.

Efforts to reclaim abandoned coal mine lands are being carried out in Iowa under two programs: the Abandoned Mined Lands Program (AML) administered by the DALS, and the Rural Abandoned Mines Program (RAMP) administered by the US Soil Conservation Service. Together, the AML and RAMP programs are expected to reclaim about 25 percent of the state's abandoned coal mine lands by 1990.

To ensure that mining activities are conducted in an acceptable manner and that mined areas are properly reclaimed, the state has enacted laws which require non-coal mines to register with the DALS and to conduct their mining activities in accordance with DALS rules. Among other provisions, these rules require that bonds be obtained to ensure site reclamation, erosion of overburden areas be minimized during mining, upon closure that overburden areas be graded and vegetated to a stable condition, and NPDES permits be obtained for all water discharges.

THE GROUNDWATER ACT
How Does It Affect You?

General Provisions

- It significantly increases the amount of information collected by the state on the quality of groundwater.
- It establishes the Leopold Center at Iowa State University to study agricultural impacts on groundwater quality.
- It establishes an Environmental Health Center at the University of Iowa to assess pollution's impact on human health.
- It establishes a Small Business Center at the University of Northern Iowa to help small businesses properly handle and dispose of solid and hazardous materials.

Pesticides and Fertilizers

- Anyone engaged in the sale of fertilizers must obtain an annual license at the cost of $10 from the Department of Agriculture and Land Stewardship.
- Anyone selling specialty fertilizers in quantities of 25 lbs. or less or applying specialty fertilizers for compensation must pay an inspection fee of $50 annually.
- Anyone manufacturing specialty fertilizers in quantities of 25 lbs. or less must pay a registration and an inspection fee of $100 annually.
- Anyone selling nitrogen-based fertilizers must pay an additional $.75 per ton sold based on an 82 percent solution and prorated for different solutions.
- Commercial or public applicators applying any pesticide must be certified. Certified pesticide applicators must now pass a state exam.
- Any person applying a restricted-use pesticide must be certified.
- Anyone engaged in the sale of pesticides must obtain a $25 annual license from the Department of Agriculture with the exception of dealers whose gross annual sales are less than $10,000 for each business location owned or operated by the dealer. After July 1, 1988, the license will cost one-tenth of one percent of gross sales.
- In order to register a pesticide for use in Iowa, the manufacturer must pay a registration fee for each chemical in the amount of one-fifth of one percent of gross sales up to a maximum of $3,000.

Wells, Sinkholes, Watersheds and Wetlands

- All ag drainage wells must be registered with the DNR by January 1, 1988.
- The Department of Agriculture and Land Stewardship will set up a demonstration project to show what types of practices will eliminate groundwater contamination from ag drai e wells and sinkholes and also suggest alternative drainage methods.
- By 1991, all ag drainage well owners must submit a plan to the Department of Agriculture and Land Stewardship showing how contamination will be eliminated from their ag drainage well or wells.
- The state goal is to eliminate all contamination from ag drainage wells and sinkholes by 1995.
- All new well construction after July 1, 1987, can only be done after a permit has been obtained from the county or DNR.
- A schedule for closing of all abandoned wells will be established and a financial assistance program set up by the DNR.
- After July 1, 1987, upon the sale of any property, the landowner must disclose any waste disposal site, underground storage tank, or existing well on the property.

Solid Waste Management and Landfills

- The tonnage fee for disposal in landfills will increase after July 1, 1988, by $.50 per ton per year until it reaches $3.50 per ton. This may mean an increase in solid waste disposal rates charged to the customer by a municipality.
- Plans are being made for alternative disposal methods from tonnage fees.
- All sanitary landfill operators must be certified by the state by July 1, 1990.
- Private disposal of any waste on any property now requires a permit from the DNR.

Household Hazardous Wastes

- All retailers who sell household hazardous materials must now have a permit which costs from $10 to $100 depending upon gross sales. Permits are obtained from the Department of Revenue and Finance.
- Retailers will display shelf labels which identify products that are considered hazardous. Informational booklets will also be available which will explain how these materials are to be handled and disposed.
- Toxic Waste Cleanup Days will occur in at least six locations (and perhaps more) around the state where the public can dispose of household hazardous materials.

Underground Storage Tank Management

- New farm and residential underground storage tanks (put into service after July 1, 1987) with a capacity of less than 1,100 gallons must now be registered with DNR for a one-time fee of $10.
- Farm and residential tanks under 1,100 gallons existing prior to July 1, 1987, shall be reported to the DNR by July 1, 1989. No fee is required.
- All underground storage tanks over 1,100 gallons must be registered with the DNR and tagged annually for a management fee of $15.
- A legislative committee will make recommendations on establishing insurance pool to insure proper tank installation and removal of unused and leaking tanks.
- Unlawful to deliver product to untagged tanks.

1987c). In general, fish are collected from predetermined sites on rivers and lakes in late summer by DNR fisheries biologists. The, analysis of fish tissue for toxics is conducted by the U.S. EPA Region VII laboratory in Kansas City, Kansas.

Special studies are conducted by the DNR at locations previously found to have fish with relatively high levels of contamination (e.g., DNR 1987d, DNR 1987e). The DNR conducted fish tissue monitoring for organochlorine pesticides and metals at six monitoring sites of the fixed-station monitoring network from 1980 through 1986.

Fish tissue monitoring is also routinely conducted by Iowa State University (Baumann and Lutz 1987) and the University of Iowa (McDonald and Johnson 1987). Both institutions monitor toxics in fish as part of water quality monitoring programs sponsored by the U.S. Army Corps of Engineers (Rock Island District) at flood control reservoirs in Iowa.

In an effort to make fish tissue monitoring more relevant and responsive to human health concerns, the emphasis of the DNR and U.S. EPA region VII programs in Iowa has been shifted. Instead of being used only for general screening of fish tissue contamination, programs are now being used for identifying areas where fish tissue contamination may pose a health threat to consumers of fish.

TOXICS IN SEDIMENT

Routine monitoring for toxics in sediment has not been conducted by the DNR or other agencies that monitor water quality in Iowa. Limited monitoring has been conducted as part of special studies, especially on Iowa lakes (e.g., Prairie Rose (DNR, 1987c) and Green Valley Lakes). The U.S. Fish and Wildlife Service has recently monitored toxics in sediments near outfalls of industrial facilities located on the Mississippi River near Clinton (D. Ruelle, USFWS, personal communication). The usefulness of data from analyses of sediments for toxics is limited by problems with analytical methods, by relatively high detection limits for toxics in sediment, and by uncertainty as to what levels constitute a pollution hazard.

3. THE FIXED-STATION MONITORING NETWORK

BACKGROUND OF FIXED-STATION MONITORING NETWORK

The DNR has sponsored fixed-station monitoring at various locations on streams and rivers in Iowa. During FFY 1986, 38 sites were monitored and in FFY 1987, 26 sites were monitored. The change in monitoring sites between FFY 1986 and 1987 was due to implementing a revised monitoring strategy.

1987 IOWA LAKES STUDY (Report pending)

Water quality sampling was conducted in the spring and summer of 1987 at five Iowa lakes. An assessment of each lake's fishery, as well as a description of factors affecting lake quality, was also compiled as part of this study.

TURKEY RIVER FISH TISSUE MONITORING (DNR, 1987e)

Monitoring in 1986 indicated that levels of chlordane in fillets of channel catfish from the Turkey River near Garber exceeded the FDA action level. In 1987, a follow-up study was conducted by the DNR to determine the extent and severity of chlordane contamination in samples of channel catfish fillets from this area. None of the five samples analyzed contained detectable levels of chlordane. No report is available at this time.

DES MOINES RIVER FISH TISSUE MONITORING (DNR, 1987d)

Monitoring in 1986 indicated that levels of chlordane in fillets of channel catfish taken immediately downstream from the city of Des Moines contained approximately two times the FDA action level. A follow-up study was conducted by the DNR in 1987 to determine the extent and severity of this contamination problem. Eleven samples of channel catfish fillets from seven sites were analyzed. Levels of chlordane were approximately one-half the FDA action level. No report is available at this time.

5. BIOLOGICAL SAMPLING PROGRAM

The DNR does not use biological sampling (i.e., the use of resident aquatic organisms to indicate relative water quality) in the surface water monitoring program. Limited biological monitoring is conducted as part of other monitoring programs.

As part of the planning activities for the surface water monitoring program, the DNR plans to evaluate methods for biologically evaluating water quality.

6. TOXICITY TESTING/HEALTH TESTING PROGRAM

Toxicity testing related to Iowa surface waters has been limited to bioscreening of selected effluents for toxicity. Effluent bioscreening is conducted to determine the acute toxicity of effluents to stream biota. That is, indicator organisms (usually fathead minnows and Daphnia) are placed in samples of treated wastewater (effluent). The mortality rate of these organisms indicates the acute toxicity of the effluent. If unusually high mortality occurs, the effluent can be analyzed for the toxics causing the mortality. Measures can then be taken to reduce or eliminate these toxics in the effluent.

use impairment. Additionally several of the toxic pollutants are not consistent with the EPA water quality standards guidance. Therefore, revisions are recommended.

Fecal Coliform: Indicator bacteria, other than fecal coliform, should be evaluated for their appropriateness for assessing use impairment of Class A uses. Because fecal coliform can come from a variety of sources, assessments based on levels of fecal coliform bacteria may overstate water quality impacts attributed to human pathogens. The EPA water quality standards guidance has proposed different indicator bacteria to measure the potential of human pathogens present in lakes and rivers.

C. WATERBODY SYSTEM

The computer programs to be used for reporting water quality assessment results from the PC version of the Section 305(b) Waterbody System (WBS) need to be completed in a timely manner, and the planned mapping software needs to be developed.

Due to delays in the delivery of the EPA/WBS to the States, it was necessary for the DNR to develop its own WBS for reporting water quality assessment results. Before these waterbody-specific data can be entered into the EPA/WBS, the DNR must evaluate the options for waterbody designation in the EPA/WBS and, with the technical assistance offered by EPA, make any necessary changes in waterbody boundaries, index all waterbodies to the EPA River Reach System, and transfer all waterbody-specific data to the EPA/WBS.

Reach Name: VOLGA R | Reach File Sequence No: 15150
USGS Cataloging Unit: 07060004 | Reach File Segment No: 18
Downstream Boundary: BRUSH CR
Upstream Boundary: LITTLE VOLGA R
Discharger(s): FAYETTE

Reach Name: LITTLE VOLGA R | Reach File Sequence No: 15149
USGS Cataloging Unit: 07060004 | Reach File Segment No: 20
Downstream Boundary: VOLGA R
Upstream Boundary: NOT DETERMINED
Discharger(s): MAYNARD

Reach Name: CROW CR | Reach File Sequence No: 15297
USGS Cataloging Unit: 07080101 | Reach File Segment No: 19
Downstream Boundary: MISSISSIPPI R
Upstream Boundary: NOT DETERMINED
Discharger(s): ELDRIDGE BKHWK ELDRIDGE LANCR

Reach Name: OTTER CR | Reach File Sequence No: 15270
USGS Cataloging Unit: 07080102 | Reach File Segment No: 7
Downstream Boundary: WAPSIPINICON R
Upstream Boundary: NOT DETERMINED
Discharger(s): OELWEIN

Reach Name: WAPSIPINICON R, E BR | Reach File Sequence No: 15260
USGS Cataloging Unit: 07080102 | Reach File Segment No: 16
Downstream Boundary: WAPSIPINICON R
Upstream Boundary: NOT DETERMINED
Discharger(s): BEATRICE CHEES

Reach Name: PRAIRIE CR
Reach File Sequence No: 15698
USGS Cataloging Unit: 07080205
Reach File Segment No: 59
Downstream Boundary: CEDAR R
Upstream Boundary: MUD CR
Discharger(s): ARCH DAN MID 2

Reach Name: PRAIRIE CR
Reach File Sequence No: 15696
USGS Cataloging Unit: 07080205
Reach File Segment No: 61
Downstream Boundary: MUD CR
Upstream Boundary: NOT DETERMINED
Discharger(s): BLAIRSTOWN

Reach Name: MUD CR
Reach File Sequence No: 15714
USGS Cataloging Unit: 07080206
Reach File Segment No: 4
Downstream Boundary: SUGAR CR
Upstream Boundary: NOT DETERMINED
Discharger(s): NORTH STAR STL WILTON DURANT

Reach Name: CEDAR R
Reach File Sequence No: 15705
USGS Cataloging Unit: 07080206
Reach File Segment No: 18
Downstream Boundary: CLEAR CR
Upstream Boundary: BIG CR
Discharger(s): U.S. NAMEPLATE

Reach Name: CEDAR R
Reach File Sequence No: 15701
USGS Cataloging Unit: 07080206
Reach File Segment No: 22
Downstream Boundary: BIG CR
Upstream Boundary: INDIAN CR
Discharger(s): CEDAR RAPIDS

Reach Name: N RACCOON R Reach File Sequence No: 16046

USGS Cataloging Unit: 07100007 Reach File Segment No: 12

Downstream Boundary: STORM CR

Upstream Boundary: NOT DETERMINED

Discharger(s): CARROLL

Reach Name: DES MOINES R Reach File Sequence No: 16061

USGS Cataloging Unit: 07100008 Reach File Segment No: 21

Downstream Boundary: FOURMILE CR

Upstream Boundary: N RACCOON R

Discharger(s): DES MOINES ICA

Reach Name: NORTH R Reach File Sequence No: 16070

USGS Cataloging Unit: 07100008 Reach File Segment No: 24

Downstream Boundary: MIDDLE CR

Upstream Boundary: BADGER CR

Discharger(s): NORWALK

Reach Name: MIDDLE R Reach File Sequence No: 16076

USGS Cataloging Unit: 07100008 Reach File Segment No: 31

Downstream Boundary: DES MOINES R

Upstream Boundary: CLANTON CR

Discharger(s): INDIANOLA NO

Reach Name: MIDDLE R Reach File Sequence No: 16074

USGS Cataloging Unit: 07100008 Reach File Segment No: 32

Downstream Boundary: CLANTON CR

Upstream Boundary: NOT DETERMINED

Discharger(s): WINTERSET

Reach Name: E NISHNABOTNA R
Reach File Sequence No: 26510
USGS Cataloging Unit: 10240003
Reach File Segment No: 10
Downstream Boundary: TURKEY CR
Upstream Boundary: TROUBLESOME CR
Discharger(s): ATLANTIC CLEVITE

Reach Name: W NODAWAY R
Reach File Sequence No: 26720
USGS Cataloging Unit: 10240009
Reach File Segment No: 1
Downstream Boundary: E NODAWAY CR
Upstream Boundary: M NODAWAY R
Discharger(s): CLARINDA

Reach Name: M NODAWAY R
Reach File Sequence No: 26719
USGS Cataloging Unit: 10240009
Reach File Segment No: 2
Downstream Boundary: W NODAWAY R
Upstream Boundary: M NODAWAY, W FK
Discharger(s): VILLISCA

Reach Name: W NODAWAY R
Reach File Sequence No: 26710
USGS Cataloging Unit: 10240009
Reach File Segment No: 10
Downstream Boundary: *B
Upstream Boundary: NOT DETERMINED
Discharger(s): MASSENA

Reach Name: E NODAWAY CR
Reach File Sequence No: 26707
USGS Cataloging Unit: 10240010
Reach File Segment No: 28
Downstream Boundary: *B
Upstream Boundary: NOT DETERMINED
Discharger(s): CORNING

TABLE B-1
DEPARTMENT'S PRELIMINARY LONG LIST

Waterbody ID	Waterbody Name	PS	NPS	UKS
D-001-1	Des Moines R.	M	E	M
D-001-2	Des Moines R.	M	E	M
D-001-3	Des Moines R	M	E	M
D-001-4	Des Moines R.	M	E	M
D-001-5	Des Moines R.	M	E	M
D-001-6	Des Moines R.	M	E	M
D-001-7	Des Moines R.		E	M
D-030	Des Moines R.		E	M
D-032-1	Des Moines R.	M	E	M
D-032-2	Des Moines R	M	E	M
D-076	Mud Cr. E.F.DMR.		E	
D-081	Des Moines R.	M	E	M
I-008	Iowa R.	M	E	M
I-009	Iowa R.	M	E	M
I-010-1	Iowa R.	M	E	M
I-010-2	Iowa R.	M	E	M
I-011	Iowa R.		M	E
I-012	Iowa R.		E	E
I-013-2	Iowa R.	M	M	M
I-013-3	Iowa R.	M	M	M
I-016	Iowa R.	M	E	M
I-017	Iowa R.		E	M
I-050-2	Cedar R.	M	M	M
I-050-3	Cedar R.	M	M	M
I-051-1	Cedar R.	M	M	M
I-053	Cedar R.	M	E	M
I-054	Cedar R.	M	E	M
I-061	Cedar R.	M	M	M
I-062-1	Cedar R.		E	M
I-062-2	Cedar R.		E	M
I-068	Rock Cr. (Cedar R.)		E	
I-120	Shellrock R.	M	E	M
I-127-1	Calmus Cr. (Winnebago R.)			E
K-007-1	Skunk R.	M	E	M
K-007-2	Skunk R.	M	E	M
K-026	S. Skunk R.	M	E	M
N-001-3	Mississippi R.	M	E	M
N-001-6	Mississippi R.	M	E	M
N-007-1	Wapsipinicon R.	E	E	M
N-007-2	Wapsipinicon R.		E	M
N-033	Maquoketa R.		E	M
N-076	aka S. Fk. Big Mill Cr.			E
S-014	Thompson R.		M	M
S-026	Nodaway R.	M	E	M
S-036	Nishnabotna R.	M	E	M
S-042	Walnut Cr.		M	M
W-001-1	Missouri R.	E	E	M
W-001-2	Missouri R.		E	M

SECTION 5. STATE SPECIAL CONCERNS

Increasing awareness and concern over the protection of Iowa's groundwater resources resulted in the passage of legislation by the 1985 Iowa General Assembly which required submission to the General Assembly in January, 1987 of "a plan embodying a general protection strategy for this state which considers the effects of potential sources of groundwater contamination on groundwater quality."

In response to this legislation, the Iowa Groundwater Protection Strategy, (DNR, 1987b) was submitted to the Iowa Legislature. The strategy identifies significant pollution sources and gives specific recommendations to help eliminate those sources. On July 1, 1987, the Iowa Groundwater Protection Act became effective. This law reflects recommendations in the Groundwater Protection Strategy. The Act focuses on research and education to aid in elimination of problems at the source. Specific human activities, often due to lack of understanding, have caused pollution problems and only changes in those activities will resolve the problems.

Major provisions of the Groundwater Protection Act include: significant increases in the amount of information collected by the state on the quality of groundwater; establishment of the Leopold Center at Iowa State University for the study of agricultural impacts on groundwater; establishment of an Environmental Health Center at the University of Iowa to assess pollution's impact on human health; establishment of a Small Business Center at the University of Northern Iowa to help small businesses properly handle and dispose of solid and hazardous materials; establishment of various fees for fertilizer and pesticide distributors and manufacturers; certification programs for applicators; establishment of increased controls on agricultural drainage wells with the goal of elimination of all contamination from ag-drainage wells and sinkholes by 1995; development of a groundwater monitoring program; establishment of an abandoned well closing program; increase of tonnage fees for disposal in landfills; establishment of sales permit regulations and improved public information materials for household hazardous materials; and improved management of underground storage tanks.

Provisions and programs mandated in this law are being implemented by the three state universities and various state agencies. The new groundwater protection programs are to be funded in part by revenues received from increased fees on activities that often contribute to groundwater pollution.

307(a) toxic parameters as well as parameters such as metals, NH_3-N, TRC and cyanide which are listed in Iowa's water quality standards.

6. LEGAL ACTIONS

During 1986 and 1987, DNR's legal staff were involved in numerous cases in which permit effluent limits and water quality standards were violated or where compliance deadlines were missed. There were 113 administrative orders (A.O.'s) issued to facilities. Some A.O.'s which involved administrative penalties resulted in a total of approximately $24,000 in collected revenues. Many of the administrative orders were issued to municipal improvement program facilities due to their failure to meet a compliance date contained in their MIP work plan. In addition, 17 cases were referred to the Iowa Attorney General for further legal action during the past two years (Table 6-4). Since 1980, there has been an increasing trend to refer noncompliers to the Iowa Attorney General for legal action. Three major cases referred during the report period involved illegal wastewater discharges and ended in permanent injunctions against further illegal discharges as well as about $120,000 in civil penalties being collected. One of these cases also resulted in monetary restitution costs for fish killed by an illegal wastewater discharge.

Table 6-4 Point Source Pollution Cases Referred to the Iowa Attorney General for the period of October 1985 through September, 1987

City or Company	Year of Referral
Archer-Daniels Midland Co.	1986
Boyer Valley	1986
Cherokee Hog	1986
Clinton Harbor	1985
Country Corner Cafe	1987
Dysart, City of	1987
Garner, City of	1987
Jungling Farms	1986
Kellogg, City of	1987
Keokuk, City of	1986
Klemme, City of	1986
Kor-Bert	1986
Mid-American Foods, Inc.	1985
Ogilvie Mills	1986
Terrace Hill	1986
Warner Livestock	1987
Woodland Pork	1986

lakes where significant lake shoreline development has taken place are affected by urban runoff. The state's nonpoint pollution assessment indicates that urban runoff is the major source of pollution for 19 lakes and a lesser source for an additional 15 lakes.

A 1980 study by Iowa State University (ISU, 1980) concluded that urban runoff would not affect water quality statewide, although localized impacts might occur. Based on the results of this study and other evaluations, the DNR has determined that a statewide urban runoff control program is not needed. As a result, water quality problems caused by urban runoff are dealt with on a case by case basis.

Although no statewide urban runoff control program exists, certain urban runoff problems are subject to direct regulation by the DNR or other agencies. For example, individual household waste disposal systems are regulated by county boards of health, according to minimum standards established in DNR rules. Similarly, sediment runoff from certain construction sites is regulated by county soil conservation districts, based on criteria given in state law.

CONSTRUCTION SITE RUNOFF - Although runoff from construction sites can carry a variety of pollutants into lakes, construction site runoff was identified as contributing nonpoint pollution to only two of Iowa's lakes. This finding may be attributed to several factors. Most construction activity in Iowa is conducted in conjunction with residential or industrial development, and its impacts may have been considered under the urban runoff category. The shoreline of most of Iowa's lakes is publicly owned, thereby restricting construction near these lakes. Lastly, regulation of construction activities by state or local agencies may present construction site runoff from adversely impacting lake water quality.

Since 1971, state law has limited the movement of sediment from certain types of land disturbing activities, including large scale residential and industrial developments. Current provisions of this law require that prior to initiating any of the regulated construction activities, an affidavit must be filed certifying that construction will be conducted in a manner which complies with the sediment control limits. County soil conservation districts are responsible for administering this law, unless such responsibility has been delegated to a qualified unit of local government.

State law also requires that DNR approval be obtained for any construction activities conducted on or over state land. For those state-owned lakes in which a portion of the shoreline is in private ownership, this provision applies to any construction conducted on land which is below the lake's ordinary high water level, while for others the provision applies to any construction activity conducted within the boundaries of state ownership.

C. NONPOINT SOURCE CONTROL PROGRAMS

Although federal law did not require states to address nonpoint pollution until the mid-1970's, efforts to deal with Iowa's nonpoint pollution problems began earlier. In 1967, the state began monitoring pesticide runoff from cropland. In 1971, a state-funded soil conservation cost share program was established. The soil conservation program was modified in 1973 to allow up to ten percent of the funds to be spent in watersheds of publicly-owned lakes.

Iowa began to conduct statewide water quality planning in 1975. Agencies having primary planning responsibilities were the Department of Water, Air, and Waste Management (now part of the Department of Natural Resources) and the Department of Soil Conservation (now part of the Department of Agriculture and Land Stewardship). Although this planning addressed a number of water quality issues, major emphasis was placed on developing a program to control pollution of streams and lakes by agricultural nonpoint sources.

These planning efforts culminated in preparation of a Statewide Water Quality Management Plan in September, 1979 (IDEQ-IDSC, 1979). This plan described Iowa's point and nonpoint source pollution problems, discussed the role of various local, state, and federal agencies in the state's pollution control efforts, and presented a five-year strategy for implementing the state's control programs.

Since its completion in 1979, this plan has been used to guide Iowa's nonpoint planning and implementation activities. To maintain its usefulness, several updates have been completed. In 1981, the overall five-year strategy was revised, and additional revisions were made to the nonpoint strategy in 1982. More recently, a comprehensive revision of the state's nonpoint control strategy was completed in December 1986. Since the 1987 amendments to the federal Clean Water Act imposed additional nonpoint control requirements upon states, it is expected that the state's nonpoint control strategy will need to be modified further in the near future.

For discussion purposes, Iowa's nonpoint pollution control efforts have been divided into the following nonpoint source categories: agricultural crop and pasture lands, animal feeding operations and animal waste disposal, urban runoff, construction site runoff, surface mining, land disposal of wastes, and floodplain construction activities.

1. AGRICULTURAL CROP & PASTURE LANDS

In 1975, Iowa's nonpoint source planning efforts began. The initial focus was on developing a program to reduce the adverse water quality impacts that runoff from agricultural lands was having on the state's surface waters. Surface water protection -was given priority since prior research and monitoring had shown that agricultural runoff was significantly impacting many of the state's streams and lakes, while little information existed on possible groundwater impacts.

In addition to obtaining permits from the DALS, operations which involve mining of sand and gravel from streambeds must also receive approval from the DNR.

No major changes are currently being planned in the state's mine regulation programs. However, the state does intend to conduct further evaluations of its regulatory programs for non-coal mines, and may modify these programs if indicated.

6. LAND DISPOSAL OF WASTES

Land disposal may involve either burial of wastes in landfills or application of wastes on (or near) the land surface. In Iowa, municipal and industrial solid wastes are generally disposed of by burial in landfills, while many municipal sewage sludges and a few industrial wastes are land applied.

Until the mid-1970's most of Iowa's municipal and industrial solid wastes were disposed of in open dumps. In 1975, state law required closure of all open dumps and restricted future solid waste disposal to burial in state-approved sanitary landfills. Since then, landfills have been regulated by the DNR. The landfill regulation program adopted by the DNR requires landfills to comply with specific siting , design, and operation criteria; subjects landfills to at least annual inspections by DNR staff; and requires renewal of landfill operation permits every three years. Currently, 103 sanitary landfills have been permitted by the DNR.

Experience has shown landfills can, under certain conditions, pollute state waters. While in a few instances seepage or runoff from the landfill surface has caused pollution of surface waters, the leaching of landfill pollutants into groundwaters is more frequently the concern. Actions are being taken to deal with this concern. First, DNR is amending its landfill rules to require installation of additional monitoring wells at landfills, to require these wells to meet specified siting and construction criteria, and to expand the list of pollutant parameters to be analyzed for in well samples. Also, if monitoring data show that significant leaching of landfill pollutants is occurring, the DNR is requiring the landfill to install and operate a leachate collection and treatment system which is DNR-approved. For all new landfills or expansions of existing landfills that go into operation after January 1, 1992, the DNR will require that a positive leachate collection and treatment system be installed before the landfill can begin operation.

Similar to the situation with waste burial in landfills, applying wastes on or near the land surface can result in pollution of either surface or groundwaters. To minimize these hazards, Iowa has taken several actions to regulate land application of municipal and industrial wastes.

E. WETLANDS PROTECTION PROGRAM

About four percent of Iowa's land area (1.5 million acres) was wetlands before settlers moved into the state (DNR, 1987a). Agricultural development resulted in the draining of most wetlands. By 1938, only 50,000 wetland acres remained. Since then, the total has been further reduced to about 35,000 acres (DNR, 1987a). Thus, Iowa has lost about 97 percent of its wetland acres.

Today, public and private organizations in the state are attempting to reverse the trend of wetlands loss. The DNR has a wetland acquisition program that has been funded since 1972 from the sale of state duck stamps. Currently, about $150,000 per year is generated from this source. Since 1985, Ducks Unlimited, a nonprofit organization, has contributed a portion of its Iowa-raised funds to the DNR's acquisition program. In 1987, the Ducks Unlimited contribution totaled approximately $90,000. These funds are used entirely for the acquisition and development of wetlands in Iowa. During the last two years, about 280 acres of wetlands have been acquired under this program.

At the local level, county conservation boards receive funds from the sale of a state habitat stamp. These revenues are matched with locally raised moneys for the acquisition of wetlands and other natural areas. Approximately 2700 acres of wetlands have been acquired by counties through this cost-sharing program during the last two years. Private assistance for some of these acquisition projects was provided through the Wetlands for Iowa program of the Iowa Natural Heritage Foundation. This organization also has a project in progress to raise one million dollars from private sources for wetlands conservation in Iowa.

The Nature Conservancy is another private organization with an active program of natural areas protection in the state. The Nature Conservancy owns about 400 acres of wetlands and associated uplands in Iowa. It is also working with the Natural Areas Inventory program of the DNR to identify significant examples of fens (calcareous bogs) in the state that are in need of protection.

The DNR, as a part of its Natural Areas Inventory data base, maintains information on wetlands throughout the state. Most of the data presently on file were obtained from the interpretation of aerial photos taken in 1981. Some of the data have been verified by field surveys, but the overall quality of these data is variable. A more recent aerial photo survey of the state by the US Fish & Wildlife Service has provided more complete information. Although the data have not been entered onto a computerized data base, locations of wetlands identified by type, have been plotted on maps.

Education concerning the value, uses, and scarcity of Iowa wetlands is conducted by the DNR as a part of its environmental education workshops for educators (teachers, naturalists, and others involved in outdoor education) and for school and youth groups. These workshops generally include topics on the ecology and water quality of wetlands. In the private sector, the Iowa Natural Heritage Foundation supports wetlands education through public service announcements on radio and television, The fixed monitoring network also utilizes data obtained from other state and federal agencies. The University of Iowa (McDonald and Johnson 1987) and Iowa State University (Baumann and Lutz 1987) conduct routine water quality monitoring related to operation of flood control reservoirs (Coralville, Saylorville, and Red Rock reservoirs). The Duane Arnold Energy Center near Palo, Iowa, sponsors fixed monitoring at four sites on the Cedar River to assess potential water quality impacts from operation of this nuclear-fueled electrical generating facility (McDonald 1987). The U.S. Geological Survey conducts routine water quality monitoring on the Mississippi and Missouri rivers as part of the National Stream Quality Accounting Network (NASQAN) (Melcher et.al. 1987). Routine monitoring is also conducted by the adjacent states of South Dakota and Minnesota on waters that flow into Iowa.

USES OF FIXED-STATION MONITORING DATA

The DNR fixed-station monitoring network is designed to determine chemical water quality conditions statewide, determine trends in water quality over time, provide data for establishing and revising chemical water quality standards, and indicate water quality impacts. This network is designed to provide water quality data that are not affected by runoff from rainfall or snow melt; samples are collected only under normal flow conditions. These types of data are especially useful for evaluating violations of state water quality standards and for providing data for use in water quality modeling activities.

The monitoring networks in Iowa established by agencies other than DNR are designed to answer questions specific to instream structures or large facilities (e.g., flood control reservoirs or power generating facilities). In general, stations in these networks have remained fixed for about the last two decades, and have been monitored more frequently than stations in the DNR network. Thus, these networks provide a relatively long-term data base that can be used to describe typical water quality and changes in water quality over time.

Data from all fixed-station monitoring networks in Iowa are used to determine the degree to which surface waters support uses designated in the Iowa water quality standards (IAC, 1986a) (for example, warmwater aquatic life, coldwater aquatic life, and swimming and water skiing).

DESCRIPTION OF FIXED-STATION MONITORING NETWORK

The current DNR fixed-station monitoring network consists of 59 stations. Fifteen of these stations are monitored monthly. The remaining 44 stations are monitored quarterly on a rotating basis. That is, a different group of 11 stations is monitored on a quarterly basis each year. After four years, all 44 quarterly stations will have been monitored, and the rotation will start again (see Drustrup 1986).

Health testing programs in Iowa are limited to using results from fish tissue monitoring. Fish tissue monitoring programs (e.g., U.S. EPA 1987b) and DNR special studies (DNR 1987d, DNR 1987e) are designed to measure levels of selected toxics in a species and tissue type (i.e., channel catfish fillets) that is commonly consumed by Iowa fishermen. Results of monitoring are compared to guidelines from the U.S Food and Drug Administration (FDA action levels), if available.

7. USE ATTAINABILITY STUDIES

STREAM USE ASSESSMENTS CONDUCTED BETWEEN OCTOBER 1985 AND SEPTEMBER 1987

Before wastewater treatment plant construction may begin (under Section 24 of Public Law 97-117, Municipal Wastewater Treatment Construction Grant Amendments of 1981), review of current use designations for receiving streams must be conducted by DNR staff. These assessments involve field surveys to determine whether designated uses of a waterbody are supported, and whether changes in use designations are justified. Over the last two years, nine stream use assessments were conducted in Iowa (Table 6-7).

STREAM USE ASSESSMENTS PLANNED FOR NEXT YEAR

The stream use assessments planned for the next year will be conducted as part of the scheduled review of the DNR water quality standards as required by Section 303(c) of the Clean Water Act and for new construction grant projects. The stream use assessments currently planned as part of the review required by Section 24 of Public Law 97-117 are listed in Table 6-8.

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Reach Name: SILVER CR

Reach File Sequence No: 15290

USGS Cataloging Unit: 07080103

Reach File Segment No: 6

Downstream Boundary: WAPSIPINICON R

Upstream Boundary: NOT DETERMINED

Discharger(s): DEWITT

Reach Name: S SKUNK R

Reach File Sequence No: 15833

USGS Cataloging Unit: 07080105

Reach File Segment No: 1

Downstream Boundary: N SKUNK R

Upstream Boundary: *D

Discharger(s): OSKALOOSA NE UNIVERSITY PRK

Reach Name: S SKUNK R

Reach File Sequence No: 15825

USGS Cataloging Unit: 07080105

Reach File Segment No: 7

Downstream Boundary: THUNDER R

Upstream Boundary: CHERRY CR

Discharger(s): NEWTON MAYTAG CO

Reach Name: INDIAN CR

Reach File Sequence No: 15818

USGS Cataloging Unit: 07080105

Reach File Segment No: 14

Downstream Boundary: CLEAR CR

Upstream Boundary: W INDIAN CR

Discharger(s): NEVADA

Reach Name: S SKUNK R

Reach File Sequence No: 15815

USGS Cataloging Unit: 07080105

Reach File Segment No: 17

Downstream Boundary: INDIAN CR

Upstream Boundary: SQUAW CR

Discharger(s): AMES

Reach Name: WAPSINONOC CR
Reach File Sequence No: 15724
USGS Cataloging Unit: 07080206
Reach File Segment No: 26
Downstream Boundary: BIG SLOUGH
Upstream Boundary: WAPSINONOC CR, M BR
Discharger(s): WEST LIBERTY

Reach Name: IOWA R, E BR
Reach File Sequence No: 15486
USGS Cataloging Unit: 07080207
Reach File Segment No: 6
Downstream Boundary: IOWA R, W BR
Upstream Boundary: NOT DETERMINED
Discharger(s): KLEMME

Reach Name: DEER CR
Reach File Sequence No: 15512
USGS Cataloging Unit: 07080208
Reach File Segment No: 23
Downstream Boundary: IOWA R
Upstream Boundary: NOT DETERMINED
Discharger(s): TOLEDO

Reach Name: IOWA R
Reach File Sequence No: 15505
USGS Cataloging Unit: 07080208
Reach File Segment No: 26
Downstream Boundary: LINN CR
Upstream Boundary: ASHER CR
Discharger(s): MARSHALLTOWN

Reach Name: BEAR CR
Reach File Sequence No: 15532
USGS Cataloging Unit: 07080208
Reach File Segment No: 39
Downstream Boundary: LITTLE BEAR CR
Upstream Boundary: LITTLE BEAR CR
Discharger(s): VICTOR

Reach Name: SOUTH R
Reach File Sequence No: 16080
USGS Cataloging Unit: 07100008
Reach File Segment No: 36
Downstream Boundary: OTTER CR
Upstream Boundary: SQUAW CR
Discharger(s): INDIANOLA SO

Reach Name: WHITE BREAST CR
Reach File Sequence No: 16100
USGS Cataloging Unit: 07100008
Reach File Segment No: 47
Downstream Boundary: LITTLE WHITE BREAST CR
Upstream Boundary: S WHITE BREAST CR
Discharger(s): OSCEOLA

Reach Name: LITTLE WHITE BREAST CR
Reach File Sequence No: 16101
USGS Cataloging Unit: 07100008
Reach File Segment No: 50
Downstream Boundary: WHITE BREAST CR
Upstream Boundary: NOT DETERMINED
Discharger(s): CHARITON

Reach Name: SUGAR CR
Reach File Sequence No: 16140
USGS Cataloging Unit: 07100009
Reach File Segment No: 2
Downstream Boundary: DES MOINES R
Upstream Boundary: NOT DETERMINED
Discharger(s): DONNELLSON

Reach Name: DES MOINES R
Reach File Sequence No: 16127
USGS Cataloging Unit: 07100009
Reach File Segment No: 8
Downstream Boundary: SOAP CR
Upstream Boundary: S AVERY CR
Discharger(s): OTTUMWA

Reach Name: W PLATTE R **Reach File Sequence No:** 26771

USGS Cataloging Unit: 10240012 **Reach File Segment No:** 17

Downstream Boundary: MIDDLE PLATTE R

Upstream Boundary: NOT DETERMINED

Discharger(s): CRESTON

Reach Name: ONE HUNDRED AND TWO R, E FK **Reach File Sequence No:** 26787

USGS Cataloging Unit: 10240013 **Reach File Segment No:** 6

Downstream Boundary: ONE HUNDRED AND TWO R, M FK

Upstream Boundary: NOT DETERMINED

Discharger(s): BEDFORD

Reach Name: COOPER CR **Reach File Sequence No:** 28053

USGS Cataloging Unit: 10280201 **Reach File Segment No:** 27

Downstream Boundary: CHARITON R

Upstream Boundary: NOT DETERMINED

Discharger(s): CENTERVILLE E CENTERVILLE W

Waterbody ID	Waterbody Name	PS	NPS	UKS
W-001-3	Missouri R.		E	M
W-006	Boyer R.		M	M
W-011-1	Floyd R.	M	M	M
W-011-2	Floyd R.	M	M	M
W-013	Big Sioux R.	E	E	M
W-015	L. Sioux R.	M	E	M

SECTION 6. WATER POLLUTION CONTROL PROGRAM

A. POINT SOURCE CONTROL PROGRAM

Point sources, as defined by EPA, are any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel, or other floating craft from which pollutants are or may be discharged. Because of its rural population, Iowa has many relatively small point sources. As an example, Iowa has a high percentage of small rural communities, small industries and family farms with livestock feeding facilities, many of which have point source discharges. These point source discharges are regulated in Iowa by DNR programs. These programs are designed to control the amount of wastewater discharged into Iowa's rivers and streams and prohibit discharges into state-owned lakes, all with the goal of meeting Iowa's Water Quality Standards.

1. CONSTRUCTION PERMITS

Any construction of a new wastewater treatment system or any significant modification to an existing wastewater treatment system, must receive a permit prior to construction. Before issuing a permit, the proposed construction is reviewed to ensure proper engineering design and compliance with state requirements and water quality standards. The DNR recently completed a revision of chapters of its wastewater facility design standards. The effort involved review of current practices and extensive coordination with city engineers, wastewater superintendents and other officials, consulting engineers and university professors. These design standards are used as guidance and minimum design criteria by engineers, municipal staffs, developers, industry officials and DNR staff in designing and reviewing proposed wastewater treatment facility construction.

For this reporting period (October 1, 1985 through September 1987), the Department issued construction permits or supplemental construction permits for 99 projects involving new construction or improvements/ modifications to existing municipal wastewater treatment facilities. Construction permits were also issued for 235 sanitary sewer extensions and 26 wastewater lift stations. In addition, there were 17 construction permits issued for industrial wastewater facilities and 13 for animal feeding operations.

2. OPERATION PERMITS

Point source discharges from Iowa's nearly 1,300 municipal and industrial wastewater treatment plants are predominantly regulated by DNR's issuance of National Pollutant Discharge Elimination System (NPDES) permits. These permits ensure that the state's water quality standards and federal categorical effluent limits are met by limiting the quality and quantity of pollutants which any facility may discharge. The permits also require the plant operator to conduct a self-monitoring program. Wastewater samples are tested and

B. STATE POLLUTION CONTROL & LAKE PROTECTION/RESTORATION PROGRAMS

A number of activities are being carried out to protect and enhance Iowa lakes due to their importance as natural and recreational resources in the state. Many of these activities, such as the management of lake fisheries or the control of point source waste discharges, are conducted as part of the normal program activities of various state and local agencies. Other activities, such as the development and implementation of comprehensive lake protection and restoration projects under EPA's Clean Lakes Program, are conducted as special projects by participating agencies. Some of the major lake protection and restoration activities conducted in Iowa are as follows:

1. POINT SOURCE POLLUTION

No Iowa lakes receive wastewater discharges from municipal or industrial point sources. The general absence of such discharges to lakes can be attributed to several factors.

Iowa Code Section 455B.186 (IAC, 1985) prohibits the direct discharge of pollutants, treated or untreated, into state-owned natural or artificial lakes. As a consequence, municipalities or industries located near such lakes have been required to use waste control methods which do not involve a lake discharge. In most cases, facilities have complied by using waste treatment systems which discharge outside of the lake watershed.

Furthermore, many of Iowa's lakes are artificial lakes. For these, waterbodies, it was generally possible to select lake sites which did not have municipal or industrial wastewater sources located within their watersheds.

In a few instances, treated municipal or industrial wastewaters are discharged into stream tributaries of lakes (Code Section 455B.186 allows such discharges). In these cases, DNR uses its normal point source pollution control programs and procedures (water quality standards, state construction permits, NPDES operation permits, construction grants, effluent and water quality monitoring, enforcement, etc.) to ensure adequate treatment is provided to protect water quality in both the receiving stream and the lake.

Animal feeding operations are also a potential point source of pollution for some lakes. In cases where waste discharges from animal feeding operations are causing pollution of either a lake or its tributary streams, the DNR acts to abate this type of pollution according to the procedures and criteria given in IAC (1985c).

2. NONPOINT SOURCE POLLUTION

Most of Iowa's lake water quality problems can be attributed to nonpoint source pollution. While agriculture is by far the major nonpoint source affecting Iowa lakes, it is not the only source. Other nonpoint sources of importance include urban runoff, construction, land disposal, hydrologic/habitat modification, and natural/other.

LAND DISPOSAL OF WASTES - In Iowa, municipal and industrial solid wastes are typically disposed of by burial in landfills, while many sewage treatment plant sludges and a few industrial wastes are land applied. Prior and disposal operations are also of concern as potential sources of water pollution, since such disposal was often done with little regard for the environment. The state's nonpoint assessment identified land disposal as a concern for two of the state's lakes. In one instance, the concern was with an operating landfill, while the other dealt with an abandoned waste disposal site located near the lake.

Until mid-1975, most municipal and industrial solid wastes were disposed of in open dumps. Use of open dumps ended in 1975 when state law prohibited their use and required that solid wastes be disposed of in sanitary landfills. Since then, the DNR has regulated the siting, design, and operation of landfills. Even though use of state regulated landfills has greatly reduced the pollution hazards associated with solid waste disposal, concerns that landfill leachate may be polluting groundwaters remain. As a result of these concerns, actions are now being taken to improve leachate detection and control at landfills.

Although use of open dumps ended in 1975, and the old dump sites have generally been covered with dirt and revegetated, some sites may still present a significant pollution hazard to state waters. Sites of particular concern are those in which substantial quantities of hazardous wastes were disposed. In Iowa, sites suspected of being pollution hazards are investigated and, if warranted, placed on a state registry of Abandoned and Uncontrolled Sites. If further investigation determines a significant pollution hazard exists, efforts are made to identify a responsible party and require them to undertake site cleanup. If this fails, site cleanup may be carried out under the U.S. EPA Superfund Program or using funds from the state hazardous waste remedial fund.

HYDROLOGIC/HABITAT MODIFICATION - The hydrology and/or habitat conditions of a lake can be significantly impacted by a variety of construction or management activities. For example, a lake's hydrology may be altered by activities such as use of lake water for municipal or rural water systems, alteration of lake outlet structures, or diversion of watershed drainage outside of the lake basin. Similarly, activities such as dredging or placement of riprap or fill may substantially alter the lake's habitat conditions.

Frequently, these activities may have both positive and negative impacts on a lake. For example, diverting storm water runoff from urban or industrial areas out of a lake basin can benefit water quality by keeping pollutants out of the lake, but can also harm the lake if this water is needed to maintain adequate lake levels.

Hydrologic and/or habitat modification is not a major concern for Iowa lakes. In fact, it was identified as a significant nonpoint source for only two lakes. In one instance, channelization resulting

Studies conducted between 1975 and 1979 further defined Iowa's agricultural nonpoint pollution problems. The nature and extent of Iowa's agricultural nonpoint pollution problems, the processes involved in generation of such pollution, and the methods by which nonpoint pollution can be controlled were addressed. These studies led to development of the state agricultural nonpoint control strategy in 1979. This strategy emphasized control of sediment, both because sediment is (by volume) the greatest pollutant of Iowa's surface waters and because sediment control also often reduces the movement of nutrients and pesticides into surface waters.

Since cropland erosion is the major source of the sediment entering Iowa's waters, the strategy stressed the need to either reduce cropland soil erosion rates or prevent eroded sediment from entering water bodies. A number of structural and management practices were considered suitable for these purposes, including terraces, diversions, sediment and water control basins, conservation tillage, contour farming, strip cropping, and crop rotations.

To promote these soil conservation practices, the strategy recommended comprehensive public information and education programs, increased funding for state and federal soil conservation cost share programs, a summer construction set-aside program, and low interest loans and tax incentives as alternatives to cost share. In addition, the strategy called for early implementation of nonpoint controls in the watersheds of high priority lakes and streams.

Substantial progress has been made since 1979 in implementing the control strategy, particularly with regard to state-legislated and funded programs. State cost share funding was increased from $5.0 million in 1979 to a high of $8.6 million in 1985, but decreased to $6.5 million in 1987. The state has also established both no-interest and low-interest soil conservation loan programs, and has authorized a summer construction set-aside program.

Considerable progress has also been made in reducing nonpoint pollution of Iowa lakes. Control projects have begun on at least 19 Iowa lakes, including Praire Rose Lake (Shelby County)(DNR, 1987c), Green Valley Lake (Union County), and Arrowhead Lake (Pottawattamie County). A number of funding sources have been used in these projects, including U.S. Department of Agriculture's Rural Clean Water Program, Agricultural Conservation Program, and Resource Conservation and Development Programs, U.S. EPA's Clean Lakes Program, Iowa Department of Agriculture and Land Stewardship's Publicly-Owned Lakes Program, and DNR's special project funds.

Since 1979, additional studies have been conducted on various nonpoint pollution topics. Studies conducted in the early 1980's evaluated the farm level economic impacts of mandatory erosion control requirements. A 1983 study assessed the factors affecting the pollution potential of agricultural chemicals and developed recommended fertilizer and pesticide Best Management Practices. Several studies conducted during the mid-1980's assessed the impacts

In 1978, the DNR adopted rules governing the land application of municipal wastewater sludges. These rules included provision allowing "low rate" land application of sludges without a permit if specified conditions were met relative to sludge composition, maximum application rates, and conditions under which disposal is conducted. The rules also allowed "high rate" land disposal of sludges, provided the disposal meets specified criteria and a permit authorizing such disposal is obtained.

In 1981, the land application rules were amended by adding provisions to allow land application of industrial or other wastes under specified conditions, including DNR approval of plans for the proposed disposal and permit authorization for the actual disposal.

In 1986, a study was initiated to determine what changes, if any, were needed in the technical criteria of DNR's rules to make them compatible with those of the US EPA. Revision of these criteria has now been put on hold pending revision of EPA's sludge disposal rules in accordance with requirements of the 1987 Clean Water Act.

Since the 1987 Clean Water Act includes new requirements relative to the land disposal of sludges and other wastes, revision of DNR's sludge disposal rules and programs will undoubtedly be required in the future. However, the exact nature and extent of the required revisions cannot be accurately determined at this time.

7. FLOODPLAIN CONSTRUCTION ACTIVITIES

A number of construction-related activities are conducted in or near Iowa's waters, including channel changes, dredging, placement of fill or riprap, and construction of such facilities as docks, piers, and bridges. These activities may impact a wide range of waters, including rivers, streams, lakes, and wetlands.

Many of these activities have the potential for adversely impacting the water body. Impacts most commonly encountered are increased turbidity, sedimentation, or habitat destruction. In many cases the impacts are temporary and end once construction is completed and disturbed areas have stabilized. However, in certain instances the water body may continue to be impacted long after the construction activity has ended. For example, straightening of a stream often has long-term impacts on the stream's ability to support certain fish species by destroying the aquatic habitat required by these species.

To ensure that both the interests of neighboring landowners and the public are protected, Iowa has established a program to regulate floodplain construction activities. Under this program, most major construction activities must be approved by DNR before construction begins. DNR rules specify the conditions under which approval must be obtained and the criteria to be used in reviewing projects. These criteria include evaluation of the project's impacts on and through distribution of informational publications and public presentations.

Wetlands in Iowa are protected by the general surface water quality criteria of the Iowa Water Quality Standards (IAC, 1986a: Section 61.3(1)). In addition, some wetlands are protected for certain uses by a Class A, B, and/or C water use designation. These use designations apply to some wetlands that are described as "lakes" in Section 61.3(5)a, and in some cases to wetlands that are associated with stream segments defined in Section 61.3(5)e. An example of the latter is the wetlands along the Mississippi River.

Proposed activities that involve dredging or filling of wetlands require approval by the US Army Corps of Engineers. This approval is subject to certification by the DNR that the proposed activity is in compliance with Iowa's Water Quality Standards. The antidegradation policy (Section 61.2(2)), in particular, requires that existing uses be maintained and protected. Under this policy, the DNR may negotiate for project changes or acceptable modifications, or may require mitigation to offset resources lost due to a project. If there is no acceptable alternative, then denial of certification is mandated.

Activities that involve only the draining of a wetland are not subject to Army Corps of Engineers or state approval.

F. COST/BENEFIT ASSESSMENT

Attempts have been made by the Department of Natural Resources over the years to assign a cost and benefit value to clean water. Most attempts have fallen short, however, because of the necessarily arbitrary values assigned to the use or potential use, of the waterbody resource; to the cost of pollution abatement facilities and their maintenance along the waterbody resource; or to the lost value of the waterbody resource caused by contamination. Much of the type of related information necessary to assign realistic values is not routinely collected by the DNR. Therefore, a complete cost/benefit assessment could not be developed for this report. Individual program costs are summarized below.

1. STATE PROGRAM COSTS

For Federal FY 1986, the DNR's combined federal and state budget for water and wastewater programs was approximately $3.6 million of a total departmental environmental budget of approximately $6.2 million. This figure represents a slightly lower budget amount for water and wastewater programs than was budgeted in previous years.

With the restructuring to the DNR, an expanded environmental budget for Federal FY 87 (federal grants and state moneys) was slightly over $5 million of which approximately $3.6 million was used to support water and wastewater efforts. In addition, there are several other agencies which also make significant contributions to Iowa's water and wastewater quality control programs. The costs of these other agency program efforts are not included in the above

A total of 27 stations is being monitored by other agencies in Iowa. Monitoring frequencies vary from quarterly to weekly. The states of Minnesota and South Dakota monitor eight stations on streams that flow into or border Iowa.

In general, the same types of parameters are analyzed for at all water quality monitoring stations: dissolved oxygen, pH, biochemical oxygen demand, turbidity, suspended solids, ammonia, nitrate, nutrients, bacteria, and metals.

Locations of monitoring stations, parameters sampled, and frequencies of sampling are described in the quality assurance/work plan for the department's fixed-station monitoring network (DNR, 1987f). Similar information for other networks can be found in the following documents:Saylorville and Red Rock reservoirs (Baumann and Lutz, 1987), Coralville Reservoir (McDonald and Johnson, 1987), Cedar River/Duane Arnold Energy Center (McDonald, 1987), and the National Stream Quality Accounting Network (NASQAN) (Melcher et.al., 1987).

CHANGES IN THE FIXED-STATION MONITORING NETWORK

The DNR fixed-station monitoring network was evaluated and revised in 1986 (Drustrup, 1986). The fixed-station network used from 1980 through September 1986 relied upon quarterly monitoring to determine water quality of large streams and to determine water quality impacts due to discharge of wastewater from large cities and industries. Many of the monitoring stations were located in pairs: one station upstream and one downstream of a metropolitan area. An evaluation of these upstream/downstream monitoring pairs showed that only fecal coliform bacteria and ammonia-nitrogen levels were elevated downstream from major point source dischargers (Drustrup, 1986). These elevated levels were expected, and effluent monitoring and special studies were felt to be more appropriate than fixed-station monitoring for evaluation of these point source impacts on water quality.

The DNR network was revised in 1986 to place more emphasis on monthly monitoring at stations not affected by point sources, monitor water quality of smaller streams, provide more complete coverage of surface waters in the state, eliminate unnecessary parameters and include parameters with a demonstrated need. With these changes, the fixed-station network can now provide better data for determining trends in water quality over time, for evaluating use support, for characterizing water quality of smaller streams not affected by point source pollution, and for use in water quality modeling activities.

4. INTENSIVE SURVEY PROGRAM

The term "intensive survey" is used in reference to a type of monitoring other than part of a long-term fixed monitoring program. Intensive surveys of water quality have been conducted generally in response to cases of severe contamination or pollution, the need to

Table 6-7 IOWA STREAM ASSESSMENTS CONDUCTED BETWEEN OCTOBER, 1985 AND SEPTEMBER, 1987 BY DNR STAFF

CITY	COUNTY	TREATMENT FACILITY	RECEIVING STREAM(S)	DATE OF ASSESSMENT	PREVIOUS CLASSIFICATION	RECOMMENDATION OF ASSESSMENT
1. Rock Valley	Sioux	existing	1. unnamed tributary (aka the Cutoff);	Oct 1985	general class	Class B(w)
			2. Rock River		Class B(w)	no change
2. Pacific Junction	Mills	proposed	1. unnamed tributary:	Oct 1985	general class	no change
			2. Keg Creek		Class B(w)	no change
3. Cincinnati	Appanoose	proposed	1. unnamed tributary:	Oct 1985	general class	no change
			2. Shoal Creek		Class B(w)	no change
4. Welton	Clinton	proposed	1. Silver Creek	Oct 1986	general class/ Class B(w)	no change
5. Atalissa	Muscatine	proposed	1. Pike Run	Oct 1986	general class	upper reach: no change lower reach: class B(w)
6. Menlo	Guthrie	proposed	1. North River		general class/ Class B(w)	no change
7. Clearfield	Ringold	proposed	1. Turkey Creek or Gard Branch	Oct 1986	general class	no change
8. Humboldt	Humboldt	existing	1. E.Fk Des Moines R.;	Nov 1986	Class A+B(w)	no change
			2. W. Fk Des Moines R.		Class A+B(w)/ Class B(w)	no change Class A+B(w)
9. Glidden	Carroll; Greene; Guthrie	existing	1. Willow Creek	Jul 1987	general class	upper reach: no change lower reach: Class B(w)

This table summarizes stream assessments between October 1985 and September 1987 to determine whether the use designations described in the DNR water quality standards (IAC, 1986a) are appropriate. These assessments were required by Section 24 of Public Law 97-117 (Municipal Wastewater Treatment Construction Grant Amendments of 1981) which requires that a state must assure that the water quality standards influencing construction grant decisions have been reviewed and that the streams are appropriately classified. The nine stream use assessments are listed in the order that the field surveys were conducted.

Hallberg, G.R. 1986. "Nitrates in groundwater in Iowa", paper presented at Nitrogen and Groundwater Conference held by the Iowa Fertilizer and Chemical Association, March, 1986, Ames, Iowa.

IAC. 1985. Chapter 455B: water quality, section 186. Iowa Administrative Code.

IAC. 1985c. Chapter 65: animal feeding operations. Iowa Administrative Code.

IAC. 1986a. Chapter 567-61: water quality standards. Iowa Administrative Code.

ICC. 1971. Stream catalog for Missouri and Mississippi river drainages. Iowa Conservation Commission.

IDEQ-IDSC. 1979. Iowa statewide water quality management plan, 1979. Iowa Department of Environmental Quality and Iowa Department of Soil Conservation. 171 p. plus Appendix.

IOR. 1985-86. Iowa Official Register. Des Moines, Iowa.

ISU. 1980. Urban stormwater quality. Iowa State Water Resources Research Institute. Iowa State University, Ames, Iowa.

Kennedy, J.O. 1987. Wasteload allocation model calibration and verification study, Big Creek-Mt Pleasant, September 1986. University Hygienic Laboratory Report 87-1. The University of Iowa, Iowa City, Iowa. 22 p.

Kennedy, J.O. and J.G. Miller. 1987a. Cresco total residual chlorine and bacterial decay study, December 1986. The Univeristy Hygienic Laboratory Report 87-2. The University of Iowa, Iowa City, Iowa. 23 p.

Kennedy, J.O. and J.G. Miller. 1987b. 1986 Iowa lakes study. Univeristy of Iowa Hgyienic Laboratory Report 87-3. Iowa City, Iowa. 363 p.

Kennedy, J.O., J.G. Miller, and D.W. Ceilley. 1987. Bacterial and total residual chlorine decay studies: Cresco, North Liberty, Solon. Report No. 88-1. Univeristy Hygienic Laboratory. University of Iowa, Iowa City, Iowa. 58 p.

Kennedy, J.O. and R.C. Splinter. 1984. Calmus Creek water quality study, May-August 1984. Report No. 85-1. University Hygienic Laboratory. Univeristy of Iowa, Iowa City, Iowa. 73 p.

Kennedy, J.O. and R.C. Splinter. 1985. Chlordane contamination study of the Cedar River, Cedar Rapids, Iowa, Spring-Summer 1985. Report No. 86-3. University Hygienic Laboratory. University of Iowa. Iowa City, Iowa. 44 p.

McDonald, D.B. 1987. Duane Arnold Energy Center, Cedar River

Reach Name: S SKUNK R

Reach File Sequence No: 15803

USGS Cataloging Unit: 07080105

Reach File Segment No: 23

Downstream Boundary: LONG DICK CR

Upstream Boundary: *A

Discharger(s): STORY CITY JEWELL ELLSWORTH

Reach Name: N SKUNK R

Reach File Sequence No: 15798

USGS Cataloging Unit: 07080106

Reach File Segment No: 3

Downstream Boundary: GERMAN CR

Upstream Boundary: BRIDGE CR

Discharger(s): SIGOURNEY COMB

Reach Name: N SKUNK R

Reach File Sequence No: 15786

USGS Cataloging Unit: 07080106

Reach File Segment No: 14

Downstream Boundary: BUFFALO CR

Upstream Boundary: SUGAR CR

Discharger(s): GRINNELL

Reach Name: BIG CR

Reach File Sequence No: 15865

USGS Cataloging Unit: 07080107

Reach File Segment No: 4

Downstream Boundary: SKUNK R

Upstream Boundary: NOT DETERMINED

Discharger(s): MT PLEASANT SW MT PLEASANT NE

Reach Name: CROOKED CR, W FK

Reach File Sequence No: 15842

USGS Cataloging Unit: 07080107

Reach File Segment No: 12

Downstream Boundary: CEDAR CR

Upstream Boundary: NOT DETERMINED

Discharger(s): WASHINGTON

Reach Name: IOWA R | Reach File Sequence No: 15570
USGS Cataloging Unit: 07080209 | Reach File Segment No: 5
Downstream Boundary: CEDAR R
Upstream Boundary: SHORT CR
Discharger(s): IBP COL JCTN

Reach Name: IOWA R | Reach File Sequence No: 15544
USGS Cataloging Unit: 07080209 | Reach File Segment No: 14
Downstream Boundary: OLD MANS CR
Upstream Boundary: CLEAR CR
Discharger(s): IOWA CITY MAIN

Reach Name: CLEAR CR | Reach File Sequence No: 15543
USGS Cataloging Unit: 07080209 | Reach File Segment No: 16
Downstream Boundary: IOWA R
Upstream Boundary: NOT DETERMINED
Discharger(s): CORALVILLE OXFORD

Reach Name: OLD MANS CR | Reach File Sequence No: 15545
USGS Cataloging Unit: 07080209 | Reach File Segment No: 19
Downstream Boundary: OLD MANS CR, N BR
Upstream Boundary: NOT DETERMINED
Discharger(s): WILLIAMSBURG

Reach Name: ENGLISH R | Reach File Sequence No: 15557
USGS Cataloging Unit: 07080209 | Reach File Segment No: 20
Downstream Boundary: IOWA R
Upstream Boundary: S ENGLISH R
Discharger(s): TWIN COUNTY DA WELLMAN

Reach Name: DES MOINES R — Reach File Sequence No: 16123

USGS Cataloging Unit: 07100009 — Reach File Segment No: 10

Downstream Boundary: MID AVERY CR

Upstream Boundary: MUCHAKINOCK CR

Discharger(s): CARGILL INC

Reach Name: MUCHAKINOCK CR — Reach File Sequence No: 16122

USGS Cataloging Unit: 07100009 — Reach File Segment No: 11

Downstream Boundary: DES MOINES R

Upstream Boundary: NOT DETERMINED

Discharger(s): OSKALOOSA SW

Reach Name: ENGLISH CR — Reach File Sequence No: 16108

USGS Cataloging Unit: 07100009 — Reach File Segment No: 19

Downstream Boundary: DES MOINES R

Upstream Boundary: NOT DETERMINED

Discharger(s): MELCHER DALLAS

Reach Name: ROCK R — Reach File Sequence No: 24659

USGS Cataloging Unit: 10170204 — Reach File Segment No: 4

Downstream Boundary: *A

Upstream Boundary: BURR OAK CR

Discharger(s): HULL

Reach Name: ROCK R — Reach File Sequence No: 24645

USGS Cataloging Unit: 10170204 — Reach File Segment No: 17

Downstream Boundary: MUD CR

Upstream Boundary: TOM CR

Discharger(s): ROCK RAPIDS

APPENDIX B

IOWA'S SECTION 304(l) PRELIMINARY TOXICS LISTS

The Department of Natural Resources (DNR) has prepared three separate listings of waterbodies as required in the 1987 Clean Water Act Amendments. These listings include waterbodies whose uses are impaired or suspected to be impaired due to toxic and conventional pollutants. Two separate efforts were completed in determining these lists. First, an EPA consultant, Research Triangle Institute (RTI), provided a compilation of candidate waterbodies for each of the three lists. Their report, "State of Iowa Identification of 304(l) Waterbodies: Candidate Lists", dated February 1988, provided the basic framework and evaluation required under the EPA guidance. Second, DNR staff completed the assessment of waterbodies following the 305(b) report guidance. The DNR assessment centered on historic monitoring data and nonpoint impacts on designated waterbodies. These two efforts were then combined into this preliminary listing of 304(l) waterbodies.

For each list, a brief description of the procedures and assumptions used by staff in assembling the list is followed by the specific list. Each list is broken into two sections representing the two different staff efforts: the first section is the department's assessment representing known or highly suspect waterbodies with impaired uses; the second section is the list of waterbodies evaluated by the consultant. It should be noted that the same waterbody is not listed in both sections of any one list. Additional staff evaluation will be performed for each item on the candidate sections to determine if the basis for the consultant's inclusion of a waterbody still exists. Insufficient time was available to complete the evaluation of each line item for this report.

Following the preliminary lists, the short list's Facilities Inventory and DNR's Water Quality Assessment Plan are presented. The facility inventory, Tables B-9 and B-10, reflects the commitment to note point sources and loadings (if known) for the short list facilities. The assessment plan addresses the approach to be followed in obtaining additional data for each waterbody impacted by a major or significant minor facility with suspected toxicity problems.

The department will continue to refine the three preliminary lists into final lists through FY 1988. The final lists are to be completed by February 4, 1989, along with other reporting requirements as noted in the agreement between EPA and DNR.

TABLE B-2
304(l) CANDIDATE LONG LIST - PROBABLE WATERBODIES

WTRBDY ID	REACH NAME	WATERBODY	PS	NPS	UKS
N-001	07060001001	MISSISSIPPI RIVER	E		
N-153	07060001027	YELLOW RIVER	E		E
N-171	07060002010	UPPER IOWA RIVER	E		
N-171	07060002013	UPPER IOWA RIVER	E		
N-086	07060003022	LITTLE MAQUOKETA RIVER	E		
N-001	07080101006	MISSISSIPPI RIVER	E		
N-001	07080101007	MISSISSIPPI RIVER	E		
N-001	07080101011	MISSISSIPPI RIVER	E		
N-005	07080101020	DUCK CREEK	E		
N-021	07080102007	OTTER CREEK	E		
N-007	07080102015	WAPSIPINICON RIVER	E		
N-007	07080103005	WAPSIPINICON RIVER	E		
N-013	07080103006	SILVER CREEK	E		
N-007	07080103013	WAPSIPINICON RIVER	E		
N-016	07080103016	YANKEE RUN	E		
K-001	07080104001	MISSISSIPPI RIVER	E		
K-001	07080104002	MISSISSIPPI RIVER	E		
I-001	07080104012	MISSISSIPPI RIVER	E		
K-023	07080105007	SOUTH SKUNK RIVER	E		
I-061	07080201011	CEDAR RIVER	E		
I-086	07080205037	BLACK HAWK CREEK	E		
I-072	07080205059	PRAIRIE CREEK	E		
I-067	07080206004	MUD CREEK	E		
I-050?	07080206018	CEDAR RIVER	E		
I-051	07080206022	CEDAR RIVER	E		
I-010	07080208001	IOWA RIVER	E		
I-025	07080208006	HOSIER CREEK	E		
I-010	07080208007	IOWA RIVER	E		
I-013	07080208010	IOWA RIVER	E		E
I-013	07080208012	IOWA RIVER	E		
I-029	07080208023	DEER CREEK	E		E
I-032	07080208029	LINN CREEK	E		
I-010	07080209015	IOWA RIVER	E		
I-024	07080209016	CLEAR CREEK	E		
D-037	07100002004	DES MOINES RIVER	E		
D-037	07100002009	DES MOINES RIVER	E		
D-037	07100002013	DES MOINES RIVER	E		E
D-065	07100003001	DES MOINES RIVER, E BR	E		
D-039	07100004008	BIG CREEK	E		
D-032	07100004013	DES MOINES RIVER	E		
D-038	07100004039	BEAVER CREEK	E		
D-045	07100005001	BOONE RIVER	E		
D-079	07100006001	N RACCOON RIVER	E		
D-082	07100006002	WALNUT CREEK	E		
D-083	07100006004	N RACCOON RIVER	E		
D-083	07100006005	N RACCOON RIVER	E		
D-083	07100006014	N RACCOON RIVER	E		E

results are submitted to the Department to determine whether permit conditions are being met. In addition to NPDES permits, Iowa operation permits are also issued for some industrial facilities and animal feeding facilities which do not discharge their wastewater to a stream, but rather treat and land apply all waste. Departmental regulations limit the amounts, concentrations, and locations of land applied waste. Major municipal wastewater dischargers (facilities discharging more than one million gallons per day) and major industrial wastewater dischargers (33 major facilities designated by EPA) were jointly meeting their effluent permit limits at a mid-80 percentile success rate during 1981-1983. The trend continued above 80 percent compliance during 1986 and 1987.

3. MUNICIPAL IMPROVEMENT PROGRAM

Many communities have found it necessary to modify their wastewater treatment facilities in order to meet minimum federal clean water standards by July 1, 1988. Reaching this goal has been hindered by reductions in EPA construction grant funds. In the past, these funds have assisted many communities in completing wastewater treatment facility improvements. As a result of the federal cutbacks, the Department initiated a municipal improvement program (MIP) which required 128 (18% of 704) Iowa communities to develop plans, without grant assistance, for needed treatment facility improvements. Of those 128 communities, 28 (22%) have thus far completed necessary construction and another 43 (34%) have facilities presently under construction. The remaining 57 (44%) communities are either in the construction planning stage and/or are facing enforcement action by the department for failure to proceed in a timely manner. Table 6-1 lists those communities having completed construction and those with construction presently underway. Table 6-2 lists the 57 communities which have not yet begun improvements.

AGRICULTURAL SOURCES

Agriculture has been identified as the major nonpoint source affecting 156 of Iowa's lakes, and as a lesser source for 11 others. By volume, siltation is most frequently identified as being the pollutant of primary concern, with nutrients and pesticides generally being secondary concerns.

In recent years, a number of projects have been initiated to reduce lake siltation problems. Since the majority of this silt comes from erosion of crop and pasture lands, these projects have generally focused on reducing soil erosion in the lake watersheds. Since 1979, projects which include efforts to control watershed soil erosion have been initiated for at least 19 Iowa lakes. These projects are listed in Table 6-5, along with the program(s) used to provide major financial support for each.

in subsequent streambed degradation of the Missouri River caused a lowering of lake water levels, while in the other an industry which served as the lake's water source closed.

The primary reason that hydrologic and/or habitat modifications are not a major concern seems to be because the state is generally able to adequately control such activities and thus prevent significant adverse impacts. Since most of these lakes and the land adjacent to them is publicly-owned, the DNR (or local lake management agencies) can generally control activities conducted within the lakes or on adjacent public lands and thus can ensure that activities are carried out in a manner which minimizes adverse impacts. Also, DNR approval is required for a variety of water uses, flood plain construction, and other hydrologic or habitat modification activities. In addition, DNR approval is required for any construction activities conducted on or above state-owned lands, including the land lying under lakes--state ownership is normally considered to extend to the lake's ordinary high water mark. These various regulatory requirements give the DNR the ability to prevent or control most of the activities that might adversely impact these lakes.

NATURAL OR OTHER SOURCES - The "natural" and "other" categories were identified as being the nonpoint sources of major concern for eight lakes. A variety of conditions were found in these lakes. For example, in one lake where "natural" was identified as the source, the specific concern was that high nutrient loadings were being delivered to the lake by migratory waterfowl. Similarly, in a lake where "other" was identified, the concern was that the nutrients in a municipality's treated wastewater discharge to a lake tributary was contributing to lake eutrophication.

Since each situation where "natural" or "other" sources are identified is likely to be different, any lake pollution problems caused by these sources will have to be evaluated individually and lake-specific control plans developed. Even then, in some cases it may not be possible to develop an acceptable control plan. For example, the lake in which nutrient enrichment by waterfowl was identified as the problem is part of a major federal wildlife refuge, and limiting its use by waterfowl would be contrary to its established purpose.

3. LAKE RESTORATION

In addition to lake pollution control activities, Iowa also conducts a variety of lake restoration and enhancement activities. These activities are most often carried out by the DNR or by county conservation boards, although other agencies and private organizations sometimes participate in specific projects.

Major restoration and enhancement activities include: improved public access to fishing areas, installation of lake aeration systems, increased lake dredging efforts, development of supplemental water sources, and fish stocking and renovation.

that agricultural nonpoint pollution was having the Iowa's groundwaters.

Although the last revision of Iowa's nonpoint source control strategy was completed in December, 1986, further modification is clearly needed. Such modification is necessary both because the 1986 revisions failed to address groundwater issues and because the 1987 federal Clean Water Act amendments established additional nonpoint planning requirements for states. To address these needs, the DNR is now conducting additional nonpoint planning activities. These activities have already resulted in completion of a statewide nonpoint source assessment report (results summarized in 1988 305(b) report), and will lead to the development of revised state nonpoint source management program (completion scheduled for August 1988).

2. ANIMAL FEEDING OPERATIONS & ANIMAL WASTE DISPOSAL

Iowa's water pollution control programs generally consider large animal feeding operations as point sources of pollution, while small operations and animal waste disposal are considered to be nonpoint sources. Even so, the state has chosen to address both types of sources through one set of rules.

Iowa first adopted rules to control pollution from animal feeding operations in,1969. The rules have been revised several times since, with the last revision made in July, 1987. They establish minimum waste control requirements for all types of animal feeding operations, and require certain methods of operation to be used if the facility is to obtain construction and/or operation permits from the DNR. Land disposal guidelines are also provided in the Iowa regulations for animal feeding operations.

Requirements applying to small feeding operations are also extensive. As a minimum, settleable solids must be removed before wastes are discharged to state waters. Confinement (totally roofed) operations are prohibited from discharging any wastes to state waters, and operations must correct any pollution problems identified through DNR investigations. The state land disposal guidelines also apply to small feeding operations.

The rules require that land disposal of animal waste be done in a manner that does not cause surface or groundwater pollution. To assist producers select suitable disposal practices, land disposal guidelines are included in an appendix to the rules. Producers are encouraged, but not required, to follow these guidelines. Topics covered in these guidelines include nutrient application rates, application methods and timing of applications, and field conditions considered suitable for conducting disposal operations.

At this time, major changes are not planned in Iowa's approach to dealing with nonpoint pollution from animal feeding operations. However, future activities may emphasize protection of trout streams, since recent studies have shown many trout streams are streambank and streambed erosion, aquatic life and habitat, and neighboring landowners and the public.

DNR rules also designate a small number of waters as "protected steams" and place additional restrictions on construction activities affecting these streams.

In addition to its state control program, the DNR also coordinates with the Corps of Engineers in the Section 404 permit program by issuing Section 401 water quality certifications for projects. This certification, which is required before a Section 404 permit can be issued, is given only if it is determined the project is consistent with the state's water quality standards.

No major changes are currently planned in the state's program for regulating floodplain construction activities.

D. GROUNDWATER PROTECTION PROGRAM

In 1985, the Iowa legislature, responding to increased public concern, requested the DNR to prepare a strategy for the protection of groundwater. The strategy was to identify significant sources of groundwater pollution and make specific recommendations on how to eliminate those sources. In January, 1987, the Iowa Groundwater Protection Strategy was presented to the Iowa Legislature. On July 1, 1987, the Iowa Groundwater Protection Act became law.

The Iowa Groundwater Protection Act largely reflects the Groundwater Protection Strategy. The Act combines a regulatory and a nonregulatory approach to environmental protection. It addresses mainly research and education in the belief that the only rational approach to protection is elimination of the problem at the source. Specific human activities, often resulting from a lack of understanding, have caused the problems and only changes in those activities will resolve the problems. Iowa's groundwater protection programs will be funded in part by increased fees on activities that often lead to groundwater pollution. The funds generated by these fees are then returned to the program area in the form of grants or direct research funds to identify and implement alternative practices.

Activities mandated by this act include provisions regarding groundwater standards, mapping, monitoring, data system improvements, and interagency coordination.

GROUNDWATER STANDARDS

A report on what role, if any, groundwater standards may play in the groundwater protection program is to be submitted to the general assembly by January 1, 1989.

figures, but their contributions are too significant to completely ignore. Examples of some of those agencies are the University of Iowa Hygienic Laboratory, Iowa Department of Agriculture and Land Stewardship, Iowa State University Cooperative Extension Service and the state universities.

2. CONSTRUCTION GRANT FUNDS

To help Iowa communities plan and construct needed wastewater treatment facilities, the DNR distributed a total of $55,342,050 in federal and state construction grants during 1986 and 1987 (Table 6-6). Recipients of these grants are selected from a list of eligible applicants. Since 1975, nearly 195 communities have received construction grant funds to help improve their treatment facilities. With the uncertainty of federal grant money, this program may no longer provide a major incentive to Iowa communities to participate in Iowa's water quality improvement program.

The EPA construction grant needs survey for 1986 identified approximately $594 million of capital needs in Iowa eligible for federal financial assistance. With the phase out of the Federal Construction Grant Program, the Municipal Improvement Program, as previously described, will continue to be the remaining major program effort for upgrading wastewater treatment facilities although state grant and loan programs will also provide some assistance.

Table 6-6 CONSTRUCTION GRANTS OFFERED IN IOWA DURING STATE FISCAL YEARS 1986 and 1987.

1986		1987	
City	Dollars	City	Dollars
Altoona	$ 4,850,730	Ames	$ 8,531,430
Ames	3,711,180	Cincinnati	580,220
Ankeny	3,105,260	Des Moines	22,286,240
Bronson	431,330	Pacific Junction	620,820
Delta	580,800	Story City	1,900,920
Des Moines	6,035,100		
Hartley	753,990		
Twin Lakes, S.D.	1,033,910		
	$20,522,420		$34,819,630

verify the predictions of water quality modeling, and the need for detailed information on water quality.

Earlier studies were designed to assess water quality of stream segments influenced by point source pollution. More recent surveys reflect the relatively greater impacts of nonpoint sources (especially agricultural and urban nonpoint sources). That is, while point source pollution remains a serious problem in Iowa, the National Pollutant Discharge Elimination System (NPDES) has been effective in controlling most cases of severe pollution of Iowa streams. Most negative impacts on current water quality cannot be traced to a point source, but rather are due to uncontrolled runoff from agricultural and urban areas. However, there are still many instances of localized pollution from point sources, but they do not affect broad areas of major waterways.

The intensive surface water surveys conducted between October, 1985 and September, 1987 are summarized as follows:

PESTICIDES IN WATER SUPPLIES USING SURFACE WATER SOURCES (Wnuk et. al., 1987)

In spring 1986, samples of treated water from 33 public water supplies that utilize surface water as a source of water were evaluated after rainfall events. At 14 of these water supplies, samples were also collected from the surface water source. Samples were analyzed for 37 pesticide compounds to determine the effectiveness of pesticide removal during the treatment process. The results indicated that conventional water treatment systems are substantially ineffective in removing or eliminating pesticides.

NORTH LIBERTY, SOLON AND CRESCO TOTAL RESIDUAL CHLORINE AND BACTERIAL DECAY STUDIES (Kennedy and Miller, 1987b; Kennedy et.al., 1987)

Studies were conducted at these three municipal wastewater facilities to characterize levels and determine instream decay rates of fecal coliform, enterococci, Escherichia coli, and total residual chlorine (TRC) during both effluent chlorination and non-chlorination.

Study data are being used to improve the estimate of rate of bacterial decay currently used by department staff in establishing effluent limits for wastewater treatment facilities. The North Liberty and Solon studies demonstrated the expected rapid bacterial dieoff, while the Cresco study noted a minor dieoff to a level similar to the elevated background level.

WASTELOAD ALLOCATION MODEL CALIBRATION AND VERIFICATION STUDY, BIG CREEK-MT PLEASANT, SEPTEMBER 1986 (Kennedy, 1987)

This study was conducted to (1) obtain data necessary to calibrate and verify the DNR's computer model (Qual II) for establishing

Table 6-8 IOWA STREAM ASSESSMENTS REQUIRED FOR FFY 1988 CONSTRUCTION GRANT FUNDING

CITY	COUNTY	BASIN	STREAM	PRESENT DESIGNATION*
1. Randall	Hamilton	Skunk	S. Skunk River	gen
2. Waucoma	Fayette	Northeast	L. Turkey River	B(w)
3. Parnell	Iowa	Iowa-Cedar	Unnamed tributary	gen
4. Lineville	Wayne	Southern	Unnamed tributary	gen
5. Ricketts	Crawford	Western	M. Soldier River	gen
6. Panama	Shelby	Western	Mosquito Creek	gen

*Present use designations:

B(w) = Class B(w): numeric criteria for protection of aquatic and semi-aquatic life of warmwater streams.

gen = general class: narrative criteria for protection of aquatic life and general uses (e.g., livestock watering) of all surface waters.

operational ecological study: annual report, January 1986-December 1986. Report prepared for Iowa Electric Light and Power Company.

McDonald, D.B. and J.K. Johnson. 1987. Coralville water quality study, January 1986 - November 1986. IIHR Limited Distribution Report No. 142. Iowa Institute of Hydraulic Research, the University of Iowa, Iowa City, Iowa. 51 p.

Melcher, N.B., M.G. Detroy, W.J. Matthes, and R.A. Karsten. 1987. Water resources data: Iowa, water year 1986. U.S. Geological Survey Water-Data Report IA-86-1. 333 p.

MPCA. 1985. Polychlorinated biphenyls (PCB's) in common carp (Cyprinus carpio) of the Upper Mississippi River (1975-1982). Minnesota Pollution Control Agency. 27 p.

U.S. EPA. 1976. Quality criteria for water. Washington D.C., pp 98-102.

U.S. EPA. 1987a. Guidelines for the preparation of the 1988 state water quality assessment (305(b) report). U.S. Environmental Protection Agency, Monitoring and Data Support Division (WH-553). Washington, DC. 32 p.

U.S. EPA. 1987b. Report of the analysis of fish collected in 1987 from Pool 15 of the Mississippi River. Activiey Number IO9E5. U.S. Environmental Protection Agency, Region VII, Kansas City, Kansas. 8 p.

U.S. EPA. 1987c. Unpublished data from the 1986 Regional Ambient Fish Tissue Monitoring Program (RAFTMP) in Iowa. Activity No. ELR90. U.S. Environmental Protection Agency, Region VII, Kansas City, Kansas.

U.S. EPA. 1987d. Water quality of the Maquoketa River near Manchester, Iowa. Activity Number ECR47. U.S. Environmental Protection Agency, Kansas City, Kansas.

USGS. Unpublished data from sampling in Iowa during 1985, 1986, and 1987. U.S. Geological Survey.

Wnuk M., R. Kelley, G. Breuer, and L. Johnson. 1987. Pesticides in water supplies using surface water sources. Iowa Department of Natural Resources. 33 p.

Reach Name: CEDAR CR

Reach File Sequence No: 15857

USGS Cataloging Unit: 07080107

Reach File Segment No: 28

Downstream Boundary: *B

Upstream Boundary: COMPETINE CR

Discharger(s): FAIRFIELD

Reach Name: LITTLE CEDAR R

Reach File Sequence No: 15588

USGS Cataloging Unit: 07080201

Reach File Segment No: 9

Downstream Boundary: BURR OAK CR

Upstream Boundary: NOT DETERMINED

Discharger(s): STACYVILLE

Reach Name: CEDAR R

Reach File Sequence No: 15587

USGS Cataloging Unit: 07080201

Reach File Segment No: 11

Downstream Boundary: LITTLE CEDAR R

Upstream Boundary: ROCK CR

Discharger(s): WHITE FARMS EQ SALSBURY LABS

Reach Name: WINNEBAGO R

Reach File Sequence No: 15630

USGS Cataloging Unit: 07080203

Reach File Segment No: 1

Downstream Boundary: SHELL ROCK R

Upstream Boundary: WILLOW CR

Discharger(s): MASON CITY

Reach Name: WINNEBAGO R

Reach File Sequence No: 15624

USGS Cataloging Unit: 07080203

Reach File Segment No: 5

Downstream Boundary: BEAVER CR

Upstream Boundary: LIME RUN

Discharger(s): FOREST CITY

Reach Name: S ENGLISH R
Reach File Sequence No: 15556

USGS Cataloging Unit: 07080209
Reach File Segment No: 28

Downstream Boundary: ENGLISH R

Upstream Boundary: NOT DETERMINED

Discharger(s): NORTH ENGLISH

Reach Name: DES MOINES R
Reach File Sequence No: 15903

USGS Cataloging Unit: 07100002
Reach File Segment No: 13

Downstream Boundary: BROWN CR

Upstream Boundary: NOT DETERMINED

Discharger(s): ESTHERVILLE

Reach Name: DES MOINES R,E BR
Reach File Sequence No: 15940

USGS Cataloging Unit: 07100003
Reach File Segment No: 3

Downstream Boundary: LOTTS CR

Upstream Boundary: BLACK CAT CR

Discharger(s): ALGONA

Reach Name: DES MOINES R
Reach File Sequence No: 15963

USGS Cataloging Unit: 07100004
Reach File Segment No: 19

Downstream Boundary: PRAIRIE CR

Upstream Boundary: SOLDIER CR

Discharger(s): FORT DODGE

Reach Name: BEAVER CR
Reach File Sequence No: 16000

USGS Cataloging Unit: 07100004
Reach File Segment No: 39

Downstream Boundary: DES MOINES R

Upstream Boundary: E BEAVER CR

Discharger(s): GRANGER BEAVER VALLEY GRAND JUNCTION

Reach Name: FLOYD R Reach File Sequence No: 24689

USGS Cataloging Unit: 10230002 Reach File Segment No: 2

Downstream Boundary: FLOYD R, W BRANCH

Upstream Boundary: WILLOW CR

Discharger(s): LEMARS

Reach Name: FLOYD R, W BRANCH Reach File Sequence No: 24692

USGS Cataloging Unit: 10230002 Reach File Segment No: 10

Downstream Boundary: MINK CR

Upstream Boundary: *A

Discharger(s): SIOUX CENTER

Reach Name: LITTLE SIOUX R Reach File Sequence No: 24805

USGS Cataloging Unit: 10230003 Reach File Segment No: 13

Downstream Boundary: SILVER CR

Upstream Boundary: MILL CR

Discharger(s): CHEROKEE IND CHEROKEE

Reach Name: LITTLE SIOUX R Reach File Sequence No: 24775

USGS Cataloging Unit: 10230003 Reach File Segment No: 39

Downstream Boundary: MUDDY CR

Upstream Boundary: OCHEYEDAN R

Discharger(s): SPENCER

Reach Name: LITTLE SIOUX R Reach File Sequence No: 24763

USGS Cataloging Unit: 10230003 Reach File Segment No: 40

Downstream Boundary: OCHEYEDAN R

Upstream Boundary: *F

Discharger(s): IA GREAT L SD

PROCEDURES FOR DETERMINING SECTION 304(1) PRELIMINARY "LONG LIST"

The "long list", as noted in the EPA 304(1) guidance, represents those surface waters that are:

1) impaired due to toxic or conventional pollutants as indicated by violations of water quality standards, and
2) not meeting the fishable/swimmable goal of the Clean Water Act.

The origin of the pollutants could be from either point and/or nonpoint sources. Thus, the department's preliminary "long list" will note the possible sources for each impaired water.

The final guidance document used in the preparation of the preliminary "long list" was entitled "Implementation of Requirements under Section 304(1) of the Clean Water Act as Amended", December 1987, EPA. Table 1 of this EPA document summarizes the basis for listing the categories of impaired waters. The development of Iowa's preliminary "long list" followed the specifications in Table 1.

The department's complete preliminary long list consists of Tables B-1, B-2, B-3, and B-4. The steps followed in determining the department's Section 304(1) preliminary "long list" are:

1. From the ambient water quality data gathered for the 305(b) Report, streams (and their segment number) which had monitored water quality standards (WQS) violations for conventional and toxic pollutants were listed.

2. The three different source categories (PS, NPS, & UKS) noted in the consultant's report were also used in the department's section of the preliminary "long list".

3. The assigned source(s) of the WQS violations were noted under the appropriate columns as "M" for monitored. It should be noted that the assigned sources were selected from the chemical monitoring assessment work sheets prepared for the DNR waterbody system, not from the combined evaluated/monitored DNR waterbody system (DNR/WBS) report.

4. From the evaluated assessment, the stream segments and their segment number were added to the long list for which use impairment resulted in "NOT SUPPORT" of both the designated use and the CWA goal.

5. The assigned sources of the use impairment were noted under the appropriate columns as "E" for evaluated. These sources were from the nonpoint evaluated worksheets prepared for the DNR/WBS.

6. Different assigned sources were grouped into the three noted columns on the long list, i.e., Point Source (PS), Nonpoint Source (NPS), and Unknown Sources (UKS).

   - PS included industrial & municipal sources.
   - NPS included agricultural & navigational sources.

WTRBDY ID	REACH NAME	WATERBODY	PS	NPS	UKS
D-090	07100006015	CEDAR CREEK	E		
D-084	07100006026	N RACCOON RIVER	E		
D-0857	07100006033	N RACCOON RIVER	E		
D-096	07100007001	S RACCOON RIVER	E		
D-099	07100007008	M RACCOON RIVER	E		
D-096	07100007013	S RACCOON RIVER	E		
D-001	07100008001	DES MOINES RIVER	E		
D-001	07100008006	DES MOINES RIVER	E		
D-001	07100008014	DES MOINES RIVER	E		
D-026	07100008020	FOURMILE CREEK	E		E
D-023	07100008022	NORTH RIVER	E		E
D-021	07100008031	MIDDLE RIVER	E		E
D-016	07100008044	WHITE BREAST CREEK	E		
D-001	07100009010	DES MOINES RIVER	E		
D-011	07100009011	MUCHAKINOCK CREEK	E		
D-001	07100009018	DES MOINES RIVER	E		E
W-001	10230001023	MISSOURI RIVER	E		
W-001	10240001013	MISSOURI RIVER	E		E

Table 6-1 Construction Activities Associated with the Municipal Improvement Program

[illegible] Facilities Completed Construction		43 Facilities Under Construction	
Adel	Dallas Center	Albia	New Sharon
Akron	Dayton	Aplington	Oelwein
Algona	Eagle Grove	Blue Grass	Ogden
Alta	Earlville	Carroll	Orange City
Alton	Elgin	Clarion	Perry
Anthon	Gowrie	Corydon	Pleasantville
Atlantic	Greene	Creston	Rockwell City
Aurelia	Iowa Falls	Dewitt	Shell Rock
Brooklyn	Iowa Great Lake, SD*	Dysart	Sigourney
Carlisle	New Hampton	Greenfield	Slater
Carson	New Hartford	Grinnell	Tabor
Clark Lake, SD*	Nora Springs	Hills	Titonka
Conrad	North English	Humeston	Villisca
	Wayland	LaPorte City	Walcott
		Madrid	Waukee
		Manning	Wellsburg
		Marshalltown	West Bend
		Moville	West Branch
		Nevada	Whittemore
		New London	Wilton

* SD = Sanitary District

Table 6-2 Construction Activities Associated with Municipal Improvement Program

57 Facilities in Planning Stage and/or Facing Enforcement

Albert City	Jewell	Mount Ayr	Terril
Audubon	Kellogg	Mount Pleasant	Tipton
Baxter	Kingsley	Newell	Toledo
Brighton	Lamoni	Odebolt	Treynor
Britt	Laporte City	Polk City	University Park
Clarinda	Lawton	Ricketts	Wapello
Correctionville	Leon	Rock Valley	What Cheer
Dike	Little Rock	Shenandoah	Wheatland
Donnellson	Lohrville	Sidney	Winfield
Earling	Martensdale	Sioux Rapids	
Glidden	Massena	Sloan	
Holstein	Maxwell	Staceyville	
Hull	McGregor	Story City	
Inwood	Mechanicsville	Stuart	
Iowa City	Middletown	Sumner	
Ireton	Monroe	Tama	

TABLE 6-5 AGRICULTURAL NONPOINT IMPLEMENTATION PROJECTS

WATER BODY	COUNTY	FUNDING SOURCE	STATUS
Prairie Rose Lake	Shelby	RCWP (USDA)	Ongoing
Arrowhead Lake	Pott.	RC&D (USDA)	Completed
Green Valley Lake	Union	Clean Lakes (EPA) IPOLP (DALS)*	Ongoing
Union Grove Lake	Tama	Clean Lakes (EPA) IPOLP (DALS)*	Ongoing
Black Hawk Lake	Black Hawk	Clean Lakes (EPA) IPOLP (DALS)*	Ongoing
Central Lake	Hancock	IPOLP (DALS)	Completed
Lake Wapello	Davis	IPOLP (DALS)	Completed
Crystal Lake	Hancock	IPOLP (DALS)	Completed
Lake Ahquabi	Warren	IPOLP (DALS)	Ongoing
Lake Darling	Jefferson Keokuk Washington	IPOLP (DALS)	Ongoing
Lake Geode	Des Moines Henry	IPOLP (DALS)	Ongoing
Hannen Lake	Benton	IPOLP (DALS)	Ongoing
Lake of the Hills	Scott	IPOLP (DALS)	Ongoing
Lake Icaria	Adams	IPOLP (DALS)	Ongoing
Rock Creek Lake	Jasper	IPOLP (DALS)	Ongoing
Volga Lake	Fayette	IPOLP (DALS) State Funds (DNR)	Ongoing
Yellowsmoke Lake	Crawford	ACP Special Project Funds (USDA)	Ongoing
Willow Lake	Harrison	ACP Special Project Funds (USDA)	Ongoing
Hawthorne Lake	Mahaska	IPOLP (DALS)	Ongoing

* IPOLP (DALS) - Iowa Publicly Owned Lakes Program (Department of Agriculture and Land Stewardship)

PUBLIC ACCESS DEVELOPMENT

Since 65 percent of the fishing done in Iowa is from shore, making shorelines more accessible to fishermen is a top priority at many lakes. A variety of methods are being used, including constructing jetties or piers into the lake, stabilizing and improving shorelines by adding rip rap or other materials, improving the roads leading to access areas, and increasing lake depth near access areas by dredging. When possible, such improvements are conducted in a manner which makes the lake fully accessible to handicapped persons.

Activities are also conducted to make lakes more accessible to boaters. These activities include acquiring and developing new boat access sites, improving the roads leading to access sites, reconstructing or improving boat ramps at existing sites, removing silt or other debris from sites, and increasing site visibility by posting additional site signs.

LAKE AERATION

In recent years, lake aeration systems have been installed in a number of state lakes. In most instances, these systems were installed in shallow lakes to prevent winter fish kills due to oxygen depletion. As a result of installing such systems in 11 lakes (with a total surface area exceeding 8,000 acres), winter fishkills have almost been eliminated in the state's significant publicly-owned lakes.

Aeration systems designed to destratify lakes and improve fish growth during summer periods are being installed in 2 Iowa lakes in 1988, and will be placed in an additional 4 lakes over the next several years. Eventually, plans call for installing such systems in up to 35 of the state's lakes.

LAKE DREDGING

Due to high costs, dredging is not used extensively as a lake restoration practice. However, in some instances its use is warranted, particularly where significant public benefits will result. For example, dredging may be justified if it reduces winter fish kills, improves conditions at swimming beaches, or increases fishing success at public access areas.

In Iowa, dredging of substantial lake areas is generally only done as part of comprehensive lake protection and restoration projects, such as those conducted under EPA's Clean Lakes Program. More frequently, dredging is limited to small areas of a lake and then is only done for specific purposes, as when accumulated sediment is removed from lake inlet to maintain its flow capacity.

DEVELOPING SUPPLEMENTAL WATER SOURCES

A small number of Iowa lakes have difficulty maintaining an adequate water level. Factors which contribute to this problem in individual being impacted by waste discharges from nearby feeding operations or as a result of habitat destruction by animals having direct access to streams.

3. URBAN RUNOFF

Since less than four percent of Iowa's land area is devoted to urban or related uses (highways, airports, industrial sites, etc.), urban runoff has not generally been considered to be a major source of nonpoint pollution in the state. A study by Iowa State University (ISU, 1980) supports this position. This study found that urban runoff was unlikely to have significant statewide water quality impacts, although localized impacts might occur. Based on these findings and other evaluations, the DNR has determined that a statewide urban runoff control program is not needed at the present time. However, cities have been encouraged to address urban storm water through site development ordinances, and many have done so.

One of the greatest urban runoff concerns in Iowa is the recent finding of high chlordane levels in the flesh of fish collected downstream of several of the state's urban areas. Since only limited monitoring has been completed, neither the extent of the problem nor the degree to which urban runoff contributes to it is clear at this time.

Future state activities in the urban stormwater area are expected to include efforts to encourage cities to include urban stormwater management provisions in site development ordinances, expand the monitoring of chlordane contamination in fish and base future actions on the monitoring results, and determine what actions the state must take to comply with the urban stormwater control provisions of the 1987 Clean Water Act.

4. CONSTRUCTION SITE RUNOFF

Since only a small amount of Iowa land is effected by construction activities at any given time, construction site runoff is not a significant statewide nonpoint pollution concern. However, unless properly controlled, runoff from construction sites may cause localized water quality problems.

Although not a major water quality concern, Iowa has taken several steps to control construction site runoff. In 1971, concerns about excessive sediment movement from construction sites prompted passage of laws setting limits on sediment movement from such sites. In 1975, the Department of Soil Conservation published a construction site erosion control handbook to familiarize contractors with practices which could be used to comply with these limits.

Amendments to the sediment control law in 1981 changed the compliance procedures of the law, but left the basic sediment limits

GROUNDWATER MAPPING

Groundwater hazard mapping of the state for the purpose of indicating the vulnerability of an aquifer to contamination is to be completed, with the results to be made available by July 1, 1991.

MONITORING

A comprehensive groundwater monitoring network is to be developed and administered which includes establishing point of use, point of contamination, and problem assessment monitoring sites across the state, as well as an assessment of ambient groundwater quality.

INFORMATION SYSTEMS

A system (or systems) within the department for collecting, evaluating, and disseminating groundwater quality data and information is to be established. A natural resources geographic information and comprehensive water resource data system is to be established.

INTERAGENCY COORDINATION

Iowa's Groundwater Protection Act coordinates the groundwater activities of a number of government agencies with DNR acting as the lead agency. The Governor has appointed a task force to assist DNR in this effort. The five person committee is composed of the Directors of the departments of Natural Resources, Health, Agriculture and Land Stewardship, Revenue and a representative of the Board of Regents.

Additional major features of the Groundwater Protection Act are summarized on the next page.

C. SURFACE WATER MONITORING PROGRAM

1. HISTORY

Since the 1970s, the DNR has collected data from fixed-station water quality monitoring sites sampled either monthly or quarterly, DNR sponsored special studies, and other agencies. Routine and special fish tissue monitoring, studies of pesticides in surface waters, and special studies of lakes have been part of DNR's special surface water studies.

Resource allocations for Iowa's surface water monitoring program have remained relatively constant throughout the last five years. In that same period, however, costs for analytical services have substantially increased. Consequently, there has been a continual emphasis over the past years to make the most effective use of the resources allocated for monitoring.

2. IDENTIFICATION OF TOXIC POLLUTANT PROBLEMS

The DNR has no specific monitoring program to identify toxic pollutant problems in water, fish, or sediment. There has not been any routine monitoring program which analyzed for the compounds on the 304(l) toxic compound list. However, some toxic pollutants have been monitored as part of other specific monitoring programs as follows:

TOXICS IN WATER

Monitoring of toxics in water has been accomplished through monitoring for metals, ammonia and total residual chlorine as part of the fixed-station network and through monitoring of pesticides in surface waters at 10 stations across the state.

Between 1968 and 1982, pesticides were monitored monthly at 12 different surface water supplies by the University Hygienic Laboratory (UHL). This routine monitoring effort was sponsored for another year beginning in October 1986, and samples were collected monthly from 10 river stations that are near intakes for public drinking water supplies.

TOXICS IN FISH

Fish tissue monitoring has been conducted to monitor for selected toxics that typically occur at concentrations too low to be detected in water. Many of these toxics accumulate in the tissues of aquatic organisms and are detected at levels higher than those found in water. Because fish are relatively easy to collect and are consumed as part of recreational and commercial fisheries, they have been used as a tool to monitor certain toxics.

The U.S. EPA Region VII office sponsors annual monitoring of fish tissue at approximately 20 sites in Iowa (e.g., U.S. EPA wasteload allocations, (2) evaluate the impact of waste discharge on the water quality of the receiving stream, and (3) evaluate populations of three bacteria in the discharge and receiving stream.

Near normal decay was observed for pollutant parameters along the receiving streams. The study data were used to calibrate and verify the model used in establishing effluent limits for Mt Pleasant. The calibrated model is being used for similar streams receiving treated domestic wastewater.

1986 IOWA LAKES STUDY (Kennedy and Miller, 1987a)

The physical characteristics, water quality, and fisheries of sixteen Iowa lakes were evaluated during the summer of 1986. The objectives of this study were to (1) compare water quality data from 1986 with data from 1979 to determine changes, (2) provide updated limnological information, and (3) provide information to justify selection and funding of nonpoint source pollution control projects.

BACKGROUND STREAM SAMPLING, PROPOSED IOWA BEEF PROCESSORS SITE, MANCHESTER, IOWA (U.S. EPA, 1987d)

Water quality sampling was performed by U.S. EPA Region VII to determine pre-project conditions of the streams which may be affected by the IBP hog slaughtering plant proposed for location near Manchester, Iowa. The results suggest that discharge of treated wastewater from the proposed facility would lead to a decrease in dissolved oxygen and increases in ammonia and algal biomass from the outfall downstream through Lake Delhi.

1986 AND 1987 PRAIRIE ROSE LAKE STUDIES (DNR, 1986 and 1987c)

Lake samples were collected between May through September of 1986 and 1987 to monitor lake quality during implementation of nonpoint source control practices in the watershed. This project has been Iowa's only federal Rural Clean Water Program (RCWP) project. Annual reports discussing long and short-term changes in lake quality during the implementation of nonpoint source control practices have been prepared.

DES MOINES METRO LANDFILL STUDY (DNR, 1987g)

A study was conducted in 1987 to assess the quality of surface and groundwater in the proximity of the Des Moines Metro landfill. Monitoring stations on Camp Creek were sampled to determine the impact of the landfill on surface water quality. Results indicated no apparent impact of the landfill on the quality of surface water or groundwater.

SECTION 7. RECOMMENDATIONS

Additional general actions which are necessary to achieve the objective of the Clean Water Act are as follows:

A. NONPOINT SOURCE POLLUTION

Nonpoint sources are the major area of concern where additional actions appear necessary to achieve the objective of the Clean Water Act.

Federal Farm Policies: Future federal farm policies should be consistent with and supportive of the goals and requirements of the Clean Water Act. Agricultural nonpoint source pollution is degrading the quality of many Iowa surface and ground waters. General farm policies have contributed to the state's nonpoint pollution problems, since these policies have historically failed to consider the water quality and other environmental impacts of agricultural production programs and practices. In recent years, and most notably through the provisions of the 1985 Food Security Act, progress has been made in including environmental protection provisions in federal farm programs. The environmental protection provisions of the Food Security Act should be fully implemented.

Assessment Methodology: Improved methods for assessing nonpoint source pollution need to be developed. The assessment and control of nonpoint source pollution is being hindered by the lack of simple, objective methodologies for determining the amount of NPS pollution occurring or the severity of the resulting water quality impacts.

B. WATER QUALITY STANDARDS

Use Designations: Water Quality Standards should be modified to more accurately identify use designations and numerical criteria. Currently, only one broad use designation exists to cover support of fish and aquatic species with a single numerical criterion for several pollutants. The U.S. EPA has recommended that Iowa adopt additional use designations for waterbodies to support different levels of aquatic resources. The development of additional use designations would include development of applicable numerical criteria for protection of species unique to each designation.

Fish Tissue Analysis: Criteria need to be revised or developed in order to better evaluate health risks or water quality impacts. Fish tissue data are used to assess support of designated uses and to identify potential health risks to consumers of fish. The lack of criteria for several contaminants (e.g., trifluralin and several metals) and problems with existing criteria (e.g., the unacceptable health risk and conflicting interpretations of the FDA action level for chlordane) make these assessments difficult.

Toxics: Current toxic pollutant criteria should be re-evaluated. It also should be determined whether new parameters need to be added to protect Iowa's use designations from toxic pollutants. Several toxic pollutants not included in the water quality standards have been noted as causing

APPENDIX A

WATER QUALITY LIMITED STREAMS

As part of its reporting obligations to EPA, the DNR has identified stream reaches that are WQL. A list of these streams is included in this appendix. This information has not yet been included in the waterbody-specific information because of differences in segment definition between the stream waterbodies, which are defined according to state water quality standards, and the WQL stream reaches, which are defined according to the EPA River Reach System. This exclusion has not prevented the completion of any statewide summaries based on waterbody-specific data. When the national waterbody system becomes available and state waterbodies are indexed to the River Reach System, the WQL designations will be included. The system is expected to be implemented prior to completion of the 1988-9 305(b) report.

Reach Name: PAINT CR

Reach File Sequence No: 14861

USGS Cataloging Unit: 07060001

Reach File Segment No: 25

Downstream Boundary: MISSISSIPPI R

Upstream Boundary: NOT DETERMINED

Discharger(s): WAUKON

Reach Name: ROBERTS CR

Reach File Sequence No: 15146

USGS Cataloging Unit: 07060004

Reach File Segment No: 5

Downstream Boundary: TURKEY R

Upstream Boundary: NOT DETERMINED

Discharger(s): SWISS VAL FARM MONONA GUNDER CHEESE1

Reach Name: OTTER CR

Reach File Sequence No: 15144

USGS Cataloging Unit: 07060004

Reach File Segment No: 16

Downstream Boundary: TURKEY R

Upstream Boundary: NOT DETERMINED

Discharger(s): WEST UNION

Reach Name: [illegible] CR

Reach File Sequence No: 15598

USGS Cataloging Unit: 07080204

Reach File Segment No: 6

Downstream Boundary: BAILEY CR

Upstream Boundary: NOT DETERMINED

Discharger(s): CLEAR LAKE SD

Reach Name: CEDAR R

Reach File Sequence No: 15637

USGS Cataloging Unit: 07080205

Reach File Segment No: 24

Downstream Boundary: ELK RUN

Upstream Boundary: VIRDEN CR

Discharger(s): WATERLOO

Reach Name: BEAVER CR

Reach File Sequence No: 15640

USGS Cataloging Unit: 07080205

Reach File Segment No: 33

Downstream Boundary: S BEAVER CR

Upstream Boundary: NOT DETERMINED

Discharger(s): APLINGTON

Reach Name: BLACK HAWK CR

Reach File Sequence No: 15648

USGS Cataloging Unit: 07080205

Reach File Segment No: 42

Downstream Boundary: MOSQUITO CR

Upstream Boundary: NOT DETERMINED

Discharger(s): GRUNDY CENTER

Reach Name: WOLF CR

Reach File Sequence No: 15660

USGS Cataloging Unit: 07080205

Reach File Segment No: 45

Downstream Boundary: CEDAR R

Upstream Boundary: TWELVEMILE CR

Discharger(s): LA PORTE CITY

Reach Name: BOONE R | Reach File Sequence No: 15980
USGS Cataloging Unit: 07100005 | Reach File Segment No: 1
Downstream Boundary: DES MOINES R
Upstream Boundary: WHITE FOX CR
Discharger(s): WEBSTER CITY

Reach Name: BOONE R | Reach File Sequence No: 15974
USGS Cataloging Unit: 07100005 | Reach File Segment No: 7
Downstream Boundary: EAGLE CR
Upstream Boundary: OTTER CR
Discharger(s): EAGLE GROVE

Reach Name: N RACCOON R | Reach File Sequence No: 16034
USGS Cataloging Unit: 07100006 | Reach File Segment No: 5
Downstream Boundary: ELM BR
Upstream Boundary: SNAKE CR
Discharger(s): PERRY OSCAR MAYER P

Reach Name: N RACCOON R | Reach File Sequence No: 16024
USGS Cataloging Unit: 07100006 | Reach File Segment No: 14
Downstream Boundary: HARDIN CR
Upstream Boundary: CEDAR CR
Discharger(s): JEFFERSON

Reach Name: N RACCOON R | Reach File Sequence No: 16004
USGS Cataloging Unit: 07100006 | Reach File Segment No: 33
Downstream Boundary: CEDAR CR
Upstream Boundary: BOYER CR
Discharger(s): SAC CITY

Reach Name: MAPLE CR — Reach File Sequence No: 24830

USGS Cataloging Unit: 10230005 — Reach File Segment No: 4

Downstream Boundary: BATTLE CR

Upstream Boundary: ODEBOLT CR

Discharger(s): IDA GROVE

Reach Name: BOYER R — Reach File Sequence No: 24868

USGS Cataloging Unit: 10230007 — Reach File Segment No: 9

Downstream Boundary: *R

Upstream Boundary: E BOYER R

Discharger(s): DENISON

Reach Name: W NISHNABOTNA R — Reach File Sequence No: 26533

USGS Cataloging Unit: 10240002 — Reach File Segment No: 26

Downstream Boundary: W NISHNABOTNA R, E BRANCH

Upstream Boundary: W NISHNABOTNA R, W FK

Discharger(s): HARLAN

Reach Name: W NISHNABOTNA R — Reach File Sequence No: 26525

USGS Cataloging Unit: 10240002 — Reach File Segment No: 28

Downstream Boundary: ELK CR

Upstream Boundary: NOT DETERMINED

Discharger(s): MANNING

Reach Name: E NISHNABOTNA R — Reach File Sequence No: 26322

USGS Cataloging Unit: 10240003 — Reach File Segment No: 3

Downstream Boundary: MILL CR

Upstream Boundary: INDIAN CR

Discharger(s): SHENANDOAH RED OAK

- UKS included natural sources, urban runoff, land disposal, & other.

7. The waterbody ID column uses the following notation, X-000-0: where X represents the major river basin code of N = Northeast River basins, I = Iowa-Cedar River basin, K = Skunk River basin, D = Des Moines River basin, S = Southern River basins, and W = Western River basins; 000 represents the stream segment number as noted in the WQS; 0 represents the subsegment number assigned in the DNR/WBS.

8. The second grouping noted, Tables B-2 and B-3, is the candidate stream segments generated by the consultant. These stream segments do not have monitored water quality standards violations nor have they been evaluated as nonsupport. All waterbodies which were noted in the consultant's report as solely category 4 (previous 305(b) Report's nonsupport waters) were deleted from the candidate lists (Tables B-2 and B-3). The current 305(b) Report evaluation supersedes information in previous reports. Stream segments are not duplicated in the three sections which comprise the preliminary "long list". Additional evaluations will be conducted to document inclusion on the final long list.

TABLE B-3
304(1) CANDIDATE LONG LIST - POTENTIAL WATERBODIES

WTBDY ID	REACH	WATERBODY NAME	PS	NPS	UKS
	07060001003	MISSISSIPPI R			E
	07060001024	VILLAGE CR			E
	07060001026	YELLOW R			E
	07060001028	YELLOW R			E
	07060002001	UPPER IOWA R			E
	07060002021	TROUT CR	E		
	07060003001	MISSISSIPPI R	E		
	07060003020	BUCK CR	E		
N-115	07060004005	ROBERTS CREEK	E		
N-095	07060004006	TURKEY RIVER	E		
N-098	07060004007	TURKEY RIVER	E		
	07060005001	MISSISSIPPI R			E
	07060005028	MISSISSIPPI R	E		
	07060006004	MAQUOKETA R			E
	07060006016	CURRAN CR	E		
	07060006019	MAQUOKETA R, N FK	E		
	07060006028	MAQUOKETA R			E
N-034	07060006029	MAQUOKETA RIVER	E		
	07060006032	MAQUOKETA R			E
N-039	07060006039	DEEP CREEK	E		
	07080101002	ELIZA CR			E
	07080101003	MISSISSIPPI R	E		
N-001	07080101005	MISSISSIPPI RIVER	E		
N-001	07080101013	MISSISSIPPI RIVER	E		
	07080101018	MILL CR	E		
	07080102008	WAPSIPINICON R			E
	07080102010	LITTLE WAPSIPINICON	E		
	07080102016	WAPSIPINICON R, E BR	E		
	07080102018	LITTLE WAPSIPINICON	E		
	07080103004	AMES CR			E
	07080104034	EDWARDS R			E
	07080104048	SUGAR CR	E		
	07080105002	S SKUNK R			E
	07080105008	CHERRY CR	E		
	07080105010	PRAIRIE CR	E		
	07080105027	SQUAW CR	E		
	07080106009	N SKUNK R			E
	07080106015	SUGAR CR	E		
	07080106019	N SKUNK R	E		
	07080106024	SLATER CR	E		
	07080107002	LONG CR	E		
	07080107011	CROOKED CR, W FK			E
	07080107012	CROOKED CR, W FK	E		
	07080107028	CEDAR CR			E
	07080201003	QUARTER SECTION RUN	E		
	07080203001	WINNEBAGO R	E		
	07080203002	WINNEBAGO R			E
	07080203003	WINNEBAGO R			E

WTBDY ID	REACH	WATERBODY NAME	PS	NPS	UKS
	07080203011	WILLOW CR	E		
	07080204001	CEDAR R. W FK			E
	07080204006	BEAVERDAM CR	E		
	07080204007	BAILEY CR	E		
	07080204008	HARTGRAVE CR	E		
	07080205016	SPRING CR	E		
	07080205025	VIRDEN CR	E		
	07080205042	BLACK HAWK CR	E		
	07080206019	BIG CR			E
	07080206028	WAPSINONOC CR	E		
	07080208009	PRICE CR	E		
	07080209003	INDIAN CR	E		
	07080209011	IOWA R			E
	07080209019	OLD MANS CR	E		
	07080209020	ENGLISH R			E
	07100002011	DES MOINES R	E		
	07100004001	DES MOINES RIVER	E		E
	07100004002	DES MOINES R			E
	07100004004	SAYLORVILLE RES			E
	07100004010	PIG CR	E		
	07100004019	DES MOINES R	E		
	07100004025	DES MOINES R			E
	07100005007	BOONE R	E		
	07100006027	N RACCOON R			E
	07100006030	CEDAR CR	E		
	07100006035	BOYER CR	E		
	07100007012	M RACCOON R	E		
	07100008012	DES MOINES R			E
	07100008013	CAMP CR	E		E
	07100008015	MUD CR			E
	07100008023	MIDDLE CR	E		E
	07100008032	MIDDLE R	E		
	07100008033	CLANTON CR	E		
	07100008035	SOUTH R			E
	07100008036	SOUTH R	E		
	07100008048	WHITE BREAST CR	E		
	07100009003	DES MOINES R			E
	10170204017	ROCK R			E
	10170204025	ROCK R			E
	10230001004	SOLDIER R			E
	10230001021	MISSOURI R	E		
	10230003013	LITTLE SIOUX R	E		
	10230003017	LITTLE SIOUX R			E
	10230003090	MILL CR	E		
	10230003093	ROCK CR			E
	10230004010	LITTLE SIOUX R, W FK	E		
	10230004024	LITTLE SIOUX R, W FK	E		
	10230005002	MAPLE CR			E
	10230005004	MAPLE CR			E
	10230005015	BATTLE CR	E		
	10230006001	MISSOURI R			E

TABLE B-6
304(1) CANDIDATE MINI LIST

ID	REACH	NAME	PS	NPS	UKS
N-153	07060001027	YELLOW RIVER	E		E
N-001	07080101005	MISSISSIPPI RIVER	E		
N-001	07080101007	MISSISSIPPI RIVER	E		
N-001	07080101013	MISSISSIPPI RIVER	E		
N-029	07080101018	MILL CR	E		
K-001	07080104001	MISSISSIPPI RIVER	E		
I-001	07080104012	MISSISSIPPI RIVER	E		
I-001	07080104048	SUGAR CR (TRIB - MISS R.)	E		
K-023	07080105008	CHERRY CR (TRIB - S.SKUNK)	E		
K-013	07080107002	LONG CR	E		
I-086	07080205037	BLACK HAWK CREEK	E		
I-013	07080208009	PRICE CR	E		
I-013	07080208010	IOWA RIVER	E		E
I-029	07080208023	DEER CREEK	E		E
I-032	07080208029	LINN CREEK	E		
D-037	07100002013	DES MOINES RIVER	E		E
D-065	07100003001	DES MOINES RIVER, E BR	E		
D-001	07100004001	DES MOINES RIVER	E		E
D-038	07100004039	BEAVER CREEK	E		
D-083	07100006014	N RACCOON RIVER	E		E
D-026	07100008020	FOURMILE CREEK	E		E
D-023	07100008022	NORTH RIVER	E		E
D-021	07100008031	MIDDLE RIVER	E		E
D-001	07100009018	DES MOINES RIVER	E		E
W-001	10230006004	MISSOURI RIVER	E		
W-001	10240001013	MISSOURI RIVER	E		E
S-019	10280102047	TWELVEMILE CR	E		

Approximately ten facilities are expected to require additional bioscreening.

3. OTHER ACTIVITIES

While not a part of the assessment plan, the department will evaluate the need for TRC limits for all applicable facilities in waterbodies falling under category 5 in the candidate short list and where required for facilities on the preliminary short list. Both acute and chronic wasteload allocations will be performed since the basis for category 5 in the consultant's report was the need for completing these allocations.

The waterbody-specific information being provided on each lake identifies each significant publicly-owned lake. Additional information on these lakes is given in Part D of this appendix.

B. WATER QUALITY STATUS AND TRENDS

Although water quality varies considerably from lake to lake, the following discussion summarizes the general water quality conditions and trends found in these lakes. This summary is based mainly upon the 1988 305(b) water quality assessment results, although the results of prior lake monitoring activities have also been considered.

1. TROPHIC CONDITION

Based upon an evaluation of the water quality monitoring data and other information compiled as part of that study, all of the lakes included in Iowa's 1979 Clean Lake's Classification Study were determined to be eutrophic. Although the water quality of some of these lakes has changed somewhat since 1979, in no instance have the changes been sufficient to change any of these lake's trophic status.

Since the physical features and water quality conditions of the seven lakes being added to the list of significant publicly-owned lakes are similar to those of the lakes already on this list, these seven lakes also are considered to be eutrophic.

2. SUPPORT OF DESIGNATED WATER USES

All of Iowa's significant publicly-owned lakes are designated for Class B(w) water use, and all but three are designated for Class A use. In addition, a number of these lakes serve as the source of water for a public water supply, and as such, are also designated for Class C use.

The results of the assessment of support of designated water uses is given in Table C-1. In addition, this table presents the assessment results with regard to attainment of federal Clean Water Act goals.

These results indicate that almost one third of these lakes are currently fully supporting their designated water uses, and most of the rest are partially supporting their designated uses. Of the three lakes not supporting uses, two are being severely impacted by siltation from agricultural lands, and the third is partially supporting its Class A and B(W) uses but not supporting a Class C use.

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 12

INFORMATIONAL

AIR QUALITY STATUS REPORT

Staff will brief the Commission on the status of the particulate primary and secondary nonattainment areas. Staff will also review with the Commission monitored violations of the Sulfur Dioxide Ambient Air Quality Standards.

Rex Walker
May 4, 1988

(101.cjs)

BEFORE THE IOWA DEPARTMENT OF NATURAL RESOURCES

IN THE MATTER OF: Handi-Klasp Company, Inc Royal Products Company, Inc.	))))	FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER DIA NO. NHS 870002

On October 7, 1986 the Iowa Department of Natural Resources (Department) issued Administrative Orders Nos. 86-SW-23, 86-AQ-15, 86-WW-41 to HANDI-KLASP Company, Inc, Royal Products Company, Inc. (HANDI-KLASP). On October 29, 1986, Handi-Klasp appealed from the issuance of the above Administrative Orders. A Notice of Hearing set the hearing for January 7, 1987.

On November 12, 1986 the Department served 23 Interrogatories and 20 Requests for Admissions upon Handi-Klasp. On December 5, 1986, Handi-Klasp filed its Petition. On December 18, 1986 Handi-Klasp filed its Response to Request for Admissions and its Answers to Interrogatories. On December 22, 1986 the Department filed its Answer. On December 29, 1986 the Department filed a Motion for Continuance of the hearing until February 19, 1987. On December 30, 1986 Handi Klasp filed a Joinder in Motion and Objection to Time Requested. On December 31, 1986 Handi-Klasp filed an Application to Transfer Hearing. On January 8, 1987 the Department filed its Resistance to Application for Transfer of Hearing. On January 20, 1987 the Application to Transfer Hearing was denied by the Environmental Protection Commission.

An Order set the hearing for March 12, 1987. On February 4, 1987 the Department filed a Request for Official Notice. On February 25, 1987 the Request for Official Notice was denied.

Department served Handi-Klasp with 22 Interrogatories. On February 13, 1987, the Department filed Amended Administrative Order Nos. 86-SW-23, 86-AQ-15, and 86-WW-41. On March 6, 1987 the Department filed a Motion for a Continuance, and on March 13, 1987 a Joinder in Motion for a Continuance was filed by Handi Klasp. The hearing was continued to April 16, 1987. The April 16, 1987 hearing was continued indefinitely to allow Handi Klasp adequate time to review written materials provided by the Department.

On August 24, 1987 the Department filed a Motion for Rescheduling Hearing. An Order set the hearing for October 13, 1987. On September 9, 1987 the Department filed an Amended Answer. On September 9, 1987 the Department filed Affidavits of four witnesses to be introduced in Lieu of Testimony. On September 16, 1987 Handi Klasp filed a request to produce and reserved its right to object to the introduction of the affidavits at the time of their proposed introduction. On September 21, 1987, the

8. On May 16, 1986 William Gross visited the disposal site on the Handi Klasp property. It was raining, and he noticed a pungent odor in the area. Gross observed white steam or smoke coming out of the disposal site. The odor was stronger at lower elevations, which is consistent with hydrocarbon vapors. Gross asked Pat Nichols for one of his respirators, and he asked Pat to watch him while he took a water sample. Gross climbed down to the east toe (bottom) of the landfill and let the water which appeared to be running through the landfill and out the east toe flow into a University Hygienic Laboratory (UHL) one quart sample jar. This water ran into a tributary which flowed to the Boone River. Gross either held the lid of the jar in his other hand while the water flowed in or he placed it in his pocket. After the jar was full, Gross screwed the top back on. The UHL provides clean sample jars and vials to the Department for their use. The jars and vials have labels on them for identifying information. All Department personnel carry the UHL sample jars or vials with them. Gross conceded pumping gasline could leave traces of hydrocarbons on his fingers, but he could not recall the last time he pumped gas prior to the taking of the sample. The chance that the sample was contaminated from hydrocarbons on Gross' fingers is very remote.
(Testimony of William Gross; Department Exhibit 4)

9. Gross placed the quart jar directly in the cooler in his car and drove back to Mason City. Since it was Friday evening the Purolator Courier would not be picking up packages for the UHL until the following Monday. Gross placed the quart jar in the office refrigerator. On Monday, Gross called the UHL to tell them that the water sample would be coming and was told by UHL that it would be best if he transferred the sample into 40 m.l. vials before he sent it to the lab. Using the table designated to handle samples, Gross carefully opened the lids of the quart jar and the UHL 40 ml vial and filled the vial to the top of the rim and then sealed it so that no air bubble would be caught. He repeated this process with two more 40 ml vials. Gross then filled out the UHL sample data sheet, requested that the samples be tested for styrene and other fiberglass components, placed the vials and sample sheet in a cooler, and sealed it with tape. He set the cooler out to be picked up by Purolator Courier.
(Testimony of William Gross)

10. William Gross has been employed by the Department for 3 1/4 years. He has his Master's Degree in Geography with an emphasis on Environmental Studies from the University of Iowa. He has completed most of his course work for his PHD. since he began working for the department, Gross has taken a number of courses and seminars on proper sampling techniques.
(Testimony of William Gross)

11. On May 22, 1986 Gross notified Lewis Nichols by certified letter of his visual observations on May 16. Gross stated that while the fire had been covered with earth, it had not been smothered completely since smoke and penetrating vapors of the

30. The quart and 40 m.l sample bottles supplied by UHL are thoroughly cleaned and heated to ensure cleanliness. They are usually supplied in a sealed state.
(Testimony of Dennis Seeger)

31. With regard to the second water sample and the soil sample, taken by Gross on May 30, 1986, Seeger testified that the laboratory followed proper procedures. On the soil sample, Seeger decided it was necessary for the lab to do further analysis since several of the peaks of the print out were off scale. The lab used a gas chromatograph interfaced with a mass spectrometer to further analyze the soil sample. Seeger verified the raw data in the final report and concluded it was accurate. Based on the raw data, Seeger could conclude that the source of the contamination was not gasoline, diesel fuel, motor oil, or mineral spirits. Seeger could not determine how long the contaminants had been in the soil. According to Seeger, the different results obtained from the second water sample and the soil sample could be due to differences in the solubility of the substances.
(Testimony of Dennis Seeger)

32. Dennis Applehons, the spill response coordinator for the Department, has his masters of science degree in environmental biology, and has been employed by the Department and its predecessor agencies since 1974. He has held his current position since August, 1982. His responsibilities include responding to hazardous chemical spills, leaking underground storage tanks, ensuring proper field and safety techinques are followed, and evaluating the environmental threat posed by spills. Applehons has attended federal and private training seminars in environmental assessment, and has conducted training seminars. He has also attended EPA and private courses on the interpretation of groundwater flows. In order to assess the risk to the environment or public health from a chemical spill it is necessary to have information of the flammability and leachability of the chemical involved to determine whether it can be transported and broken down in the environment. It is also important to determine the hydrology (flow characteristics and ground water flow) and geology (types of soils) of the area potentially affected. Among the tools and documents Seeger relies upon are topographical maps, technical journals, and reference books relied on by other professionals in the field.
(Testimony of Dennis Applehons)

33. Applehons has never visited the Handi Klasp disposal site. In addition to the tools and documents referred to above, Applehons relied on the inspections reports prepared by the Department and the UHL laboratory reports in making his risk assessment.
(Testimony of Dennis Applehons)

34. The soil in the area of the disposal site is Stordon Hayden soil type. It is a steep, well drained soil, usually found in

Administrative Code 23.2(1). The Nichols made efforts to extinguish the fire, but some of their efforts were hampered by wet weather and difficulty in obtaining the necessary machinery. However, wet weather and availability of machinery cannot justify allowing the fire to smolder for 78 days.

Lewis Nichols' actions in removing approximately ten truckloads of earth-ash mixture from the disposal site and transporting it to another site is a potential violation of Iowa Code section 455B.307(1) and other statutes. Mr. Nichols never asserted that the waste was removed to a permitted facility. The department has requested by administrative order that Lewis Nichols disclose the location of the waste. The department is entitled to the information, and is entitled to have their request enforced. United States v. Powell, 379 U.S. 48(1964); United States v. Morton Salt, 338 U.S. 632 (1950). The investigation is within the agency's authority, the request is not indefinite, and the information requested is reasonably relevant.

7. Iowa Code section 455B.186 prohibits the discharge of a pollutant into any water of the State unless the discharge is pursuant to a permit issued by the director.

8. Iowa Code section 455B.174(3) authorizes the director to take any action or actions allowed by law which, in the director's judgement, are necessary to enforce or secure compliance with the provision of Part 1 of Division III of Chapter 455B, "Water Quality", and any rule or standard established pursuant thereto.

9. 567 Iowa Administrative Code 62.1(1) provides that the discharge of any pollutant from a point source into a navigable water is prohibited unless authorized by an NPDES permit.

10. The Boone River is classified as a high quality resource water at and below the confluence with Brewer's Creek, downstream from this area, and is protected as a "B(w)" (fisheries resource) in the vicinity of the dumpsite. 567--61.2(2) "f" (8) and 61.3(5)"e" Iowa Administrative Code.

11. The chemical compounds benzene, toluene, styrene, xylene and ethylbenzene constitute hazardous substances as defined by Iowa Code section 455B.411(3) and as defined by Iowa Code section 455B.381(1) and subrule 567--131.1(1). These substances have been designated as "hazardous substances" by the Environmental Protection Agency, 40C.F.R §302.4 and 40C.F.R §116.4A.

12. Iowa Code section 455B.381(2) states: "Hazardous condition" means any situation involving the actual, imminent, or probable spillage, leakage, or release of a hazardous substance onto the land, into a a water of the state, or into the atmosphere, which creates an imminent or potential danger to the public health or safety or to the environment. For purposes of this division, a site which is an abandoned or uncontrolled disposal site as defined in section 455B.411, subsection 1, is a hazardous condition.

This matter was appealed by the Company, and a hearing was held. All pleadings have been filed in this matter. The Department wishes to draw attention to its Answer and Amended Answer filed on December 22, 1986 and September 9, 1987, respectively, as a detailed discussion of its basis for this order.

The Department will not attempt, to relate the facts presented at the hearing in a separate section of this Brief. Instead, facts will be presented as they are necessary throughout. The transcript will be referenced as (Tr. Tape #/Side/Location on tape).

The Department will address the following issues:

1. Did a "hazardous condition" result from the burning of the Handi-Klasp Company, Inc./Royal Products Company, Inc. disposal site? (Surface and groundwater contamination)

2. Did a "hazardous condition" result from the burning of the Handi-Klasp Company, Inc./Royal Products Company, Inc. disposal site? (Release of toxic air contaminants)

3. Did the activities of Handi-Klasp Company, Inc./Royal Products Company, Inc. result in a "prohibited discharge"?

The companys focus on these sample results however and exclude all of the other evidence of the release which occurred here. The Department has consistently maintained that the sample results are but one piece of information which it considered in making its determination that a release of these chemicals resulted from the fire. The Department also considered the Material Safety Data Sheets for each raw material utilized by the companys (Ex. 20, Donald Sandifer, Tr. 3/1/45, Dennis Appelhons, Tr. 9/2/246), a number of treatises which are commonly used by experts in the field of risk assessment (Ex. 25A-25E and Ex. 26 and Ex. 34) and common knowledge and experience relating to the wastes in the disposal site. (Donald Sandifer, Tr. 2/1/380, Dennis Seeger, and Dennis Appelhons, Tr. 7/1/220).

The Department's assertion that the release of the volatile hydrocarbons resulted from the fire is also consistent with the testimony of the companys expert, Mr. Nieman, and an unrefuted statement by Mr. Nichols found in Ex. 20. Mr. Nieman testified that he is not surprised that the release of the hydrocarbons would result from this burning. (Ronald Nieman, Tr. 20/1/427). Furthermore, Mr. Nichols, who has no chemistry background, when asked to account for the presence of these hydrocarbons in the soils and water sample stated to Mr. Sandifer during the EPA inspection that "it is possible that the compounds were given off from the resins and hardeners of the burning fiberglass material. (Ex. 20, disposal site and with Mr. Nieman's description of these soils which he stated contained "small rocks or cobbles". (Ronald Nieman, Tr. 20/1/150)

Mr. Appelhons testified that a review of the Exhibit 30 and his experience indicates that soils in the area of the site are of the Storden/Hayden variety. That is, the soils are well to moderately drained loam soils in a glacial till and alluvium. (Dennis Appelhons, Tr. 8/1/80-100). The relevance of this information is that liquids migrate through these soils readily. (Dennis Appelhons, Tr. 8/1/111) Dissolved contaminants and contaminants in liquid phase will move both horizontally and vertically through these soils off of the site. (Dennis Appelhons, Tr. 8/1/160)

As was stated above, the companys contend that a "clay" cap was periodically constructed which, they argue, tends to decrease any migration of contaminants (Lewis Nichols and Ronald Nieman, Tr. 20/2/77). Mr. Nichols and Mr. Neiman were, however, incapable of determining the permeability of these soils (Lewis Nichols, Tr. 19/2/154, Ronald Nieman, Tr. 20/2/85) and readily admitted that these soils were taken from an area near the disposal site. (Lewis Nichols, Tr. 19/2/150, Ronald Nieman, Tr. 20/2/92) The companys Exhibits and Mr. Nieman's description of the soils used for cover are, however, consistent with the description of the an "immediate or potential danger to the public health or safety". Iowa Code section 455B.381(2). It is clear from the language of the statute, the legislative history, and the statutory definitions, that a hazardous condition which constitutes an emergency need only present a "potential" danger to public health.

The "standard", that is, what is or is not an "imminent or potential danger" was first enumerated in the House Committee Report accompanying the Safe Drinking Water Act. In that report it is stated as follows:

> ". . .under the Clean Air Act, the Committee intends that this language be construed by the courts and the Administrator so as to give paramount importance to the objective of protection of the public health. Administrative and judicial implementation of this authority must occur early enough to prevent the potential hazard from materializing. This means that "imminence" must be considered in light of the time it may take to prepare administrative orders or moving papers to commence and complete litigation and to permit issuance, notification, implementation, and enforcement of administrative or court orders to protect the public health.
>
> Furthermore, while the risk of harm must be "imminent" for the Administrator to act, the harm itself need not be. Thus, for example, the Administrative may invoke this section when there is an imminent likelihood of the introduction into drinking water of contaminants that may cause health damage after a period of latency.
>
> Among those situations in which the endangerment may be regarded as "substantial" are the following: (1) a substantial likelihood that contaminants capable of causing adverse health effects will be ingested by consumers if preventive action is not taken; (2) a substantial statistical probability that disease will result from the presence of contaminants in drinking water; or (3) the threat of substantial or serious harm (such as exposure to carcinogenic agents or other hazardous contaminants).

of statutory cleanup standards had proved to be one of the major sources of controversy for the Superfund program during the first five years. In spite of this controversy, Congress did not adopt specific standards. Instead it provided, by section 121 of the Act, that any remedial action selected shall "attain a degree of cleanup of hazardous substances, pollutants and contaminants released into the environment and of control of further release at a minimum which assures protection of human health and the environment. (Emphasis mine.) Such remedial actions shall be relevant and appropriate under the circumstances presented by the release or threatened release of such substance, pollutant or contaminant". This is, therefore, the broadly stated "substantive" standard which is applied on a case by case basis for Superfund sites, i.e., "appropriate under the circumstances present."

The Department has a similar standard, Iowa Code section 455B.381 which provides that a "hazardous condition" is any situation involving the actual, imminent or probable spillage, leakage or release of a "hazardous substance" onto the land, into a water of the state or into the atmosphere which creates an "immediate or potential danger to the public health or safety or to the environment." The Department is the agency of the state directed to prevent, abate and eliminate such conditions when they exist. This task is not reducible to generalization. The lack of rules therefore is

WTBDY ID	REACH	WATERBODY NAME	PS	NPS	UKS
	10230006002	MISSOURI R			E
	10230006003	MOSQUITO CR			E
	10230006006	PIGEON CR			E
	10230006009	MISSOURI R			E
	10230007002	BOYER R			E
	10230007008	BOYER R	E		
	10230007013	BOYER R	E		
	10240002003	WALNUT CR			E
	10240002005	WALNUT CR	E		
	10240002023	W NISHNABOTNA R, E BRA			E
	10240002026	W NISHNABOTNA R	E		
	10240002027	W NISHNABOTNA R			E
	10240002036	SILVER CR	E		
	10240003002	MILL CR			E
	10240003003	E NISHNABOTNA R	E		
	10240003009	TURKEY CR	E		
	10240003010	E NISHNABOTNA R	E		E
	10240003014	E NISHNABOTNA R			E
	10240009001	W NODAWAY R	E		
	10240012017	W PLATTE R	E		E
	10280101014	SHANE CR	E		
	10280102008	MUDDY CR			E
	10280102033	THOMPSON R	E		E
	10280102042	THOMPSON R			E
	10280102047	TWELVEMILE CR	E		
	10280102049	ELK CR			E
	10280201009	CHARITON R	E		
	10280201011	CHARITON R			E
	10280201013	RATHBUN RES			E
	10280201017	CHARITON R	E		E
	10280201018	CHARITON R	E		
	10280201026	WALNUT CR			E

PROCEDURES FOR DETERMINING SECTION 304(1) PRELIMINARY "SHORT LIST"

Following Table 1 in the EPA guidance, the preliminary "short list" noted only stream segments for which point sources of toxic pollutants were wholly or partially responsible for causing a water quality standards violation. Page 13 of the EPA guidance specifies that the stream segments noted on the short list are considered to be "known" toxic problem areas based on the department staff's professional judgement as to the sources of the toxic pollutants. As noted in the EPA guidance, the "short list" is a subset of the "long list".

The department's preliminary "short list" consists of Tables B-7 and B-8. In determining the department's section 304(1) preliminary "short list", the following steps were taken.

1. From the ambient water quality data gathered for the 305(b) Report, streams (and their segment number) which had monitored water quality standards (WQS) violations for toxic pollutants were listed.

2. Only stream segments with monitored water quality standards violations for toxics from a point source were included. If the assigned sources were also noted as NPS and/or UKS, these sources were included in the preliminary "short list" (Table B-7). It should be noted that the assigned sources were selected from the chemical monitoring assessment work sheets prepared for the DNR/WBS, not from the combined evaluated/monitored DNR/WBS report.

3. Different assigned sources were grouped into three noted columns: i.e., Point Source (PS), Nonpoint Sources (NPS), and Unknown sources.

   - PS included industrial and municipal sources.
   - NPS included agricultural and navigational sources.
   - UKS included natural sources, urban runoff, and other sources.

4. Waterbody ID column uses the following notation, X-000-0: where X represents the major river basin code of N = Northeast River basin, I = Iowa/Cedar River basin, K = Skunk River basin, D = Des Moines River basin, S = Southern River basins, and W = Western River basins; 000 represents the stream segment number as noted in the WQS; 0 represents the subsegment number assigned in the WBS.

5. The second grouping noted in Table B-8 is the candidate stream segments generated by the consultant. These stream segments do not have monitored water quality standards violations, but rather fit into one of the 16 categories which could potentially lead to a violation. As in the candidate long and mini lists, the segments with only category 4 toxic impacts were eliminated from the consultant's short list. Stream segments are not duplicated between the two sections on the overall short list. Additional evaluations will be conducted to document the need for individual control strategies.

TABLE B-9
DEPARTMENT'S PRELIMINARY SHORT LIST FACILITY INVENTORY

Waterbody ID	Waterbody Name	Pollutants[1]	Facilities
D-001-1	Des Moines R.	Hg-T	Unknown
D-001-2	Des Moines R.	Hg-T	Unknown
D-001-3	Des Moines R.	Hg-T	Unknown
D-001-4	Des Moines R.	Hg-D	Unknown
D-001-5	Des Moines R.	Cd-D	Des Moines STP
D-001-6	Des Moines R.	Cd-D	Des Moines STP
D-032-1	Des Moines R.	Hg-D	Unknown
D-032-2	Des Moines R.	Hg-D	Unknown
D-081	Des Moines R.	Hg-D	Unknown
I-008	Iowa R.	Hg-D	Unknown
I-009	Iowa R.	Cu-T, Hg-T	Unknown
I-010-1	Iowa R.	Cu-T, Hg-T	Unknown
I-010-2	Iowa R.	Cu-T, Hg-T	Unknown
I-013-2	Iowa R.	Cu-T, Hg-T, 44	Marshalltown PCA, & Unknown
I-013-3	Iowa R.	Cu-T, Hg-T	Unknown
I-016	Iowa R.	Cu-T, Hg-T	Unknown
I-050-2	Cedar R.	Cu-T, Hg-T	Unknown
I-050-3	Cedar R.	Cu-T, Hg-T	Cedar Rapids, & Unknown
I-051-1	Cedar R.	Cu-T, Hg-T	Cedar Rapids, & Unknown
I-053	Cedar R.	Hg-T, 30, 36	Waterloo, J.Deere, Chamberlain Mfg. & Unknown
I-054	Cedar R.	Cu-T, Hg-T	Waterloo Industrial & Unknown
I-061	Cedar R.	Cu-T, Hg-T	Unknown
I-120	Shellrock R.	Cu-T, Hg-T	Unknown
K-007-1	Skunk R.	Hg-T, Hg-D	Unknown
K-007-2	Skunk R.	Hg-T	Unknown
K-026	S. Skunk R.	Hg-T	Unknown
N-001-3	Mississippi R.	PCB, Hg	Unknown
N-001-6	Mississippi R.	Hg-T, 86, 129	Unknown
S-026	Nodaway R.	Hg-T	Unknown
S-036	Nishnabotna R.	Hg-T	Unknown
W-011-1	Floyd R.	Cu-T	Unknown
W-011-2	Floyd R.	Cu-T	Unknown
W-015	L. Sioux R.	Cu-T, Hg-T	Unknown

Footnote

1: Numbered Parameters
- 30 -Copper
- 36 -Silver
- 44 -PCB-1254
- 86 -Hexachlorobenzene
- 129 -3,3-dichlorobenzidine

TABLE C-1

Significant Publicly-Owned Lakes

Designated Use Support

Status of Use Support	Number of Lakes	Lake Acres	Percent of Total Number	Percent of Total Acres
Use Fully Supported	36	25,930	31.6	61.2
threatened*	25	18,849		
Use Partially Supported	74	15,363	64.9	36.3
Use Not Supported	3	1,064	2.6	2.5
Use Support Not Determined	1	3	0.9	0.0
Total	114	42,360		

* Lakes threatened are a subset of the lakes fully supporting uses.

Support of Clean Water Act Goals

Level of Goal Support	Fishable Goal		Swimmable Goal	
	Number	Acres	Number	Acres
Goal Supported	111	41,721	108	41,557
Goal Not Supported	2	636	2	636
Goal Not Attainable	0	0	3	164
Support Not Determined	1	3	1	3

3. CAUSES AFFECTING LAKES

For all lakes in which the level of use support was determined as 'fully supported/threatened', 'partially supported', or 'not supported', the cause(s) impacting the lake were identified. Table C-2 presents the results of this assessment.

These results indicate that siltation is the major cause of the impacts for a majority of these lakes. However, the results also indicate that in terms of total acres impacted, nutrients are more significant than siltation.

ENVIRONMENTAL PROTECTION COMMISSON

ITEM 13 INFORMATION

FINE PARTICULATE (PM10) AIR QUALITY STATE IMPLEMENTATION PLAN (SIP)

EPA promulgated new air quality standards for particulate matter on July 1, 1987. As a result the state must prepare and submit a new State Implementation Plan (SIP).

The new standards apply only to the finer airborne particulates, those with a diameter of less than approximately 10 microns, instead of the approximately 100 micron size addressed in the previous standards. Despite this, EPA is allowing states to use major portions of their existing SIPs unless they are clearly inadequate.

To take advantage of the work already put into the existing SIPs to control particulates, the state must agree to:

- make certain changes in its existing rules,
- monitor for exceedances of the new standard,
- notify EPA if any exceedances occur,
- make whatever SIP revisions are necessary if any violations occur, and
- prepare the documentation that future violations are not likely (if violations are not detected in three years of monitoring).

Because the state is agreeing to perform future activities, EPA is calling this a "committal SIP".

Alternatively the state may choose to start fresh and develop an entirely new SIP for fine particulates.

The staff hopes to use the "committal SIP" option to minimize disruption by building on the existing program. As a result, the staff intends to bring the attached draft rules and "committal SIP" to the Commission at next month's meeting to request approval to take them to Public Hearing.

EPA's Region VII staff have reviewed the draft rules and "committal SIP". Their suggestions have been incorporated into these documents. Upon completion of the rulemaking cycle the Department would submit these two items to EPA as the State of Iowa's PM10 SIP.

Ruling on Admission of Witnesses Affidavits in Lieu of Testimony was filed. On October 6, 1987 the Response to Request to Produce was filed by the Department.

The hearing was held on October 13, November 3, December 10, and December 21, 1987 in conference rooms of the Wallace State Office Building, 900 E. Grand, Des Moines, Iowa 50319. On December 10, 1987 Handi Klasp filed a Notice to Hearing Officer and to Defendants as to Additional Witnesses, which was allowed over the Department's objection. Representing the parties were Mark Landa, counsel for the Department and Stewart H.M. Lund, Counsel for Handi Klasp. The undersigned hearing officer presided.

The Record

The evidentiary record in this case consists of the recorded testimony of the witnesses, the above pleadings, and the following Exhibits:

Department's Exhibit 1	Thompkin's phone log summary dated 3-26-86.
Department's Exhibit 2	Gross' phone log summary dated 3-26-86.
Department's Exhibit 3	Letter from L. Nichols to Gross dated 3-27-86.
Department's Exhibit 4	Letter from Gross to L. Nichols dated 5-22-86.
Department's Exhibit 5	Thompkin's phone log summary dated 5-27-86.
Department's Exhibit 6	Thompkin's phone log summary dated 5-27-86.
Department's Exhibit 7	DNR complaint form dated 5-30-86.
Department's Exhibit 8	Thompkin's phone notes 5-30-86.
Department's Exhibit 9	Gross' phone log dated 5-30-86.
Department's Exhibit 10	Gross' phone log dated 5-30-36.
Department's Exhibit 11	Letter from P. Nichols to Gross and attached Safety Data Sheets.
Department's Exhibit 12	Thompkin's phone log dated 6-3-86.
Department's Exhibit 13	Admission denied.
Department's Exhibit 14	Letter from Gross to L. Nichols dated 6-4-86.

smoldering fiberglass trimmings were detected at the site. The letter further stated that when exposed to heat and fire, fiberglass may release styrene, a designated hazardous substance under the Federal Water Pollution Control Act. The letter further stated that Nichols should have the smoldering fiberglass waste excavated and have the combustion extinguished as soon as possible, and that solid waste should be taken to a sanitary landfill for proper disposal.
(Department Exhibit 4)

12. On May 27, 1986, region 2 of the department received a phone call from Malmstrom relating two complaints he had received from neighbors 1/4 to 1/2 mile from the disposal site. The neighbors complained of odors from Handi Klasp which were giving them headaches.
(Testimony of Al Tompkins; Department Exhibit 5)

13. Al Tompkins called the Nichols to relate the neighbor's complaints. Lewis Nichols told Tompkins the fire was still smoldering. Nichols objected to Gross' recommendations on how to extinguish the fire, contending it would make the situation worse. Nichols also noted that he had been unable to get a caterpiller on the site because it had been raining for several days, and it was too muddy. Tompkins advised him to put out the fire as soon as possible.
(Testimony of Al Tompkins; Department Exhibit 6)

14. On May 30, 1986 the Department received another complaint from a citizen who lived east of Handi Klasp regarding vapors penetrating her house. She stated the vapors caused watering eyes and headaches.
(Testimony of Bill Gross; Department Exhibit 7)

15. Also on May 30, 1986 Malmstrom called Region 2 again to relate complaints of odors he had received from five neighbors who lived 1/4-1/2 mile from the disposal site.
(Testimony of Bill Gross; Department Exhibit 8)

16. On May 30, 1986 Gross called UHL to find out if they had the results from the water sample. He was told they found benzene, toluene and other aromatics, but no styrene. They still had to quantify the amounts, and they expected the numbers to be less than the original sampled because some contaminants were lost transferring the sample to the vials. Gross then called Pat Nichols who told him that the excavating crew was waiting on site for the surface to dry out. Gross told Nichols about the preliminary sampling results and told him he would be required to remove all waste from the site, extinguish the combustion, and take it to a sanitary landfill. Gross told Nichols that the excavators should wear respirators.
(Department Exhibit 10)

17. Gross visited the disposal site again on May 30, 1986. It was not raining, and there was not as much steam coming from the

steep slopes, and is moderately permeable. The lower part of the subsoil, which is 24 inches thick, is dark yellowish brown, triable loam and clay loam. The elevation reading at the stream bank of the Boone River is approximately 1020 feet. The elevation of the top of the area close to Royal Products is 1090 ft. There is, therefore, approximately a 70 foot drop from the top of the bluff to the river. There is a regular groundwater flow pattern in the area to the southeast. At Handi-Klasp, however, due to the elevation, ravine, and low river, the flow pattern would be from the facility to the river.
(Testimony of Dennis Applehons, Department Exhibit 24,30)

35. Applehons approved the sampling technique of Gross with the exception of the transfer of the first water sample from a quart container to vials. This transfer probably reduced the level of the hydrocarbons in the sample. However, the transfer of the sample did not affect Applehon's acceptance of it for his risk assessment since the actual concentration of the hydrocarbons was not important at that point. It was only important that contaminants were present in the sample.
(Testimony of Dennis Applehons)

36. Benzene, toluene, styrene, xylene, and ethylbenzene have varying solubilities in water, but will flow with water. Applehons concluded that the above listed contaminants in the area of the disposal site would be transferred through the soils with each succeeding rain fall or snow melt. The chemicals would continue to move down through the soil until it reaches the groundwater or an impermeable layer and then would flow by gravity with the groundwater. Applehons testified that it is possible to take samples from the same location at different times with different results. The contaminant can move as a slug (or group). If a sample at the head end of a slug there is a high level of contaminants, but if a sample is taken a few days later after a rainfall the slug may have moved on, and the sample results might not show any contaminants.
(Testimony of Dennis Applehons)

37. Benzene is classified by the EPA as a hazardous substance, a hazardous waste, and a priority toxic pollutant. It is considered to be a carcinogen. It is a clear, colorless, volatile chemical. The threshhold limit value (TLV) level that should not be exceeded for a work environment was 10ppm but was recently amended to 1ppm. The harmful effects and short term symptoms associated with benzene exposure are headache, dizziness, irritated eyes and nose. Long term exposure to benzene has been associated with leukemia. Benzene contained by soil barriers may percolate into soil resulting in the spread of contamination.
(Testimony of Dennis Applehons; Department Exhibit 25A,26)

38. Styrene is classified by the EPA as a hazardous substance. It is a colorless to yellowish, oily liquid with a penetrating odor. Styrene liquid and vapor are irritating to the eyes, nose,

13. Iowa Code section 455B.411(1) defines "abandoned or uncontrolled disposal site" as real property which has been used for the disposal of hazardous waste or hazardous substances either illegally or prior to regulation under this chapter. The preponderence of the evidence did not establish that the Handi Klasp disposal site was an "abandoned or uncontrolled disposal site". Hazardous wastes or substances were not disposed of in the site. The waste in the site did not become a hazardous waste or substance until after the fire.

14. Iowa Code section 455B.386 provides in relevant part:
"Notification of spills-penalty. A person manufacturing, storing, handling, transporting, or disposing of a hazardous substance shall notify the department, the local police department, or the office of the sheriff of the affected county as soon as possible but not later than six hours after the onset of the hazardous condition or discovery of the hazardous condition." The evidence presented at the hearing was insufficient to establish a violation of this provision. Louis Nichols spoke with Bill Gross on March 26, 1986 at 3:20 p.m. The evidence is unclear as to what time the Nichols became aware of the hazardous condition. It appears that when they become aware of the fire they immediately called the fire department and then the fire department called the Department. Therefore it cannot be concluded as a matter of law that more than six hours had passed before the Department was notified.

15. The evidence introduced at the hearing clearly established that there was a release of hazardous substances onto the land, into the water of the state and into the atmosphere. This release resulted from the burning of the fiberglass parts and products in the landfill. The evidence also established that the release creates an imminent or potential danger to the environment. Therefore, Handi-Klasp violated Iowa Code Section 455B.186 and 567 Iowa Code 62.1(1). Handi-Klasp also violated these provisions when it rinsed its product with LCP-60 over an outside drain that led to the creek.

16. Iowa Code section 455B.416(4)(a) provides:
"If upon receipt of any information, the director determines that the presence of a hazardous waste at a facility or site at which hazardous waste is, or has been, stored, treated, or disposed of, or the release of the waste from the facility or site may present a substantial hazard to human health or the environment, the director may issue an order requiring the owner or operator of the facility or site to conduct reasonable monitoring, testing, analysis, and reporting with respect to the facility or site to determine the nature and extent of the hazard.

17. Iowa Code section 455B.416(4)(c) provides:

4. Does the waste disposed of by Handi-Klasp Company, Inc./Royal Products Company, Inc. constitute a "hazardous waste"?

5. Did the disposal of the wastes generated by the companys at the site constitute a violation of Iowa Code section 455B.307?

6. Did the burning of the disposal site constitute "open burning"?

7. Is Mr. Nichols required to divulge the location of wastes removed from the companys property?

ARGUMENT

1. DID A "HAZARDOUS CONDITION" RESULT FROM THE BURNING OF THE HANDI-KLASP COMPANY, INC./ROYAL PRODUCTS COMPANY, INC. DISPOSAL SITE? (SURFACE AND GROUNDWATER CONTAMINATION)

Iowa Code section 455B.381(2) defines "hazardous condition" to mean any situation involving the actual, imminent or probable spillage, leakage, or release of a hazardous substance onto the land, into a water of the state or into the atmosphere which creates an immediate or potential danger to the public health or safety or to the environment.

p. 4) A review of the MSDS makes it clear how even someone with no chemistry background can come to this correct conclusion.

Finally, with regard to the collection of the samples and the "source" of the release of the hydrocarbons, the companys raise only one alternative source, gasoline. This question was considered in great detail by Mr. Dennis Seeger. It is his opinion, upon review of the raw data from the analysis of the samples, that the contamination present in these sample is not the result of gasoline. (Dennis Seeger). This opinion was not refuted and because of Mr. Seeger's experience, and knowledge in the area of interpreting this type of data, it should be given great weight.

The Department has further asserted that the hydrocarbons which were released constitute "hazardous substances" as this term is defined by Iowa Code section 455B.381 and rule 567--131.1(455B) (IAC). This assertion is supported by the testimony of Mr. Donald Sandifer, (Tr. 2/1/365), Mr. Dennis Appelhons, Tr. (9/2/225) and by the exhibits 25A-25E and 26. Furthermore, these substances have been designated as "hazardous substances" by the Environmental Protection Agency, 40 C.F.R. § 302.4 and 40 C.F.R. § 116.4A. The court in Kelly v. U.S., 23 ERC 1501 (U.S. D.C. Mich. 1985) and U.S. v. Hardage, 18 ERC 1687 (U.S. D.C. Ok. 1982) found benzene and toluene to constitute "hazardous substances".

Storden/Hayden soils. (Ronald Nieman, Tr. 20/1/150). The Department asserts, therefore, that the covering of the disposal site will do little to prevent the downward leakage of liquids through the waste and into the groundwater. In fact, the water samples taken of the leachate from this site indicates that liquids are migrating through the site and are contaminated. And, these contaminated liquids are leaving the site. (Bill Gross, Exhibit 21).

Finally, the Department has shown that the release of these hazardous substances from this site creates an immediate or potential danger to the public health or safety or to the environment and that Iowa Code section 455B.381(1), which authorizes the Department to take action if such a danger exists, is both jurisdictional and substantive in nature.

During the course of the hearing on this matter the Department repeatedly argued that the assertions of the Department could be divided into two categories: 1) That violations of specific statutory and administrative authority were committed and 2) that a "duty" imposed by Iowa Code chapter 455B was breached. With regard to the latter, Iowa Code Part 4 imposes a "duty" upon the companys as a result of the release of the hazardous substances described above which resulted in a hazardous condition. The Department contends that this "duty" is actually a broadly stated

H.R. Rep. No. 1185, 93rd Cong., 2d Sess. 35-36, reprinted in, 1974 U.S. Code & Cong. Ad. News 6454, 6487-88."

U.S. v. Reilly Tar & Chemical Corp., 546 F Supp. supra at 1109-1110 (D.S. Minn. 1982).

This "standard" has subsequently been applied in many cases.

In U.S. v. Vertac Chemical Corp. 489 F. Supp. 870 (E.D. Ark. 1980) the state of Arkansas sought a preliminary injunction requiring two corporations to cease the discharge of toxic chemicals into surface water and groundwater. The main thrust of the evidence presented by the state was that chemicals found on the plant site were likely to escape into the environment if action was not taken and that small amounts had already been released. The court ruled generally that:

"Reserve Mining Co. v. Environmental Protection Agency, 514 F.2d 492 (7 ERC 1618) (8th Cir. 1975) is one of the most significant decisions in the field of environmental law. In that case the court en banc reversed some aspects of a preliminary injunction issued by Judge Miles Lord closing Reserve's plant located on the shores of Lake Superior, because of the discharge of taconite "tailings" into the lake and ambient air. "The trial court, not having any proof of actual harm, was faced with a consideration of 1) the probabilities of any health harm and 2) the consequence, if any, should the harm actually occur." Id. at 519. Just as in Reserve there exists in the present case no proof of actual harm sustained from the escape of dioxin from the premises of Vertac. There is proof that a number of Vertac employees did develop chloracne a skin pathology, after a "blowout" at the plant several years ago. It has been conceded that Vertac has installed modifications to prevent a recurrence of such an event in the future. The question presented here is whether dioxin is now escaping from the not a defense. The Department is not required to promulgate detailed rules interpreting every statutory provision that may be relevant to its actions or covering every conceivable situation which might come before it. See the following cases setting forth this principle, Pulido v. Heckler, 758 F2d 503, 506 (10th Cir. 1985), West v. Cafeev, 560 F2d 942, 947 (8th Cir. 1977) and Amerada Hess Corp. v. Conrad, 410 NW2d 124, 133 (N.D. 1987).

As was stated by the U.S. Supreme Court in Securities and Exchange Commission v. Chenery Corp., 332 U.S. 194, 202-203 (1947):

> "Not every principle essential to the effective administration of a statute can or should be cast immediately into the mold of a general rule. Some principles must await their own development, while others must be adjusted to meet particular, unforeseeable situations. In performing its important functions in these respects, therefore, an administrative agency must be equipped to act either by general rule or by individual order. To insist upon one form of action to the exclusion of the other is to exalt form over necessity.
>
> In other words, problems may arise in a case which the administrative agency could not reasonably foresee, problems which must be solved despite the absence of a relevant general rule. Or the agency may not have had sufficient experience with a particular problem to warrant rigidifying its tentative judgment into a hard and fast rule. Or the problem may be so specialized and varying in nature as to be impossible of capture within the boundaries of a general rule. In those situations, the agency must retain power to deal with the problems on a case-to-case basis if the administrative process is to be effective. There is thus a very definite place for the case-by-case evolution of statutory standards. And the choice made between proceeding by general rule or by individual, ad hoc litigation is one that lies primarily in the informed discretion of the administrative agency..."

TABLE B-4
DEPARTMENT'S PRELIMINARY
LONG LIST (LAKES)

Waterbody ID	Waterbody Type	Waterbody Name	PS	NPS	UKS
Harrison - 1	Wetland	California Bend		E	E
Harrison - 4	Wetland	Dunlap Pond		E	
Harrison - 7	Wetland	Tyson Bend		E	E
Jasper - 2	Lake	Rock Cr. Lake		E	
Linn - 2	Lake	S. Cedar Pond			E
Linn Co.	Lake	Cedar Lake			M
Mills - 5	Lake	Malvern Pond			E
Monona - 10	Wetland	Rabbit Island Lake		E	E
Monona - 2	Wetland	Blencoe Lake		E	E
Monona - 5	Wetland	Decatur Lake		E	E
Monona - 6	Wetland	Louisville Bend		E	E
Monona - 7	Wetland	Lower Decatur Lake		E	E
Monona - 8	Wetland	Middle Decatur Lake		E	E
Page - 1	Lake	Pierce Cr. Pond		E	
Scott - 2	Lake	Cody Lake		E	E
Scott - 5	Lake	Odetta Lake			E
Shelby - 1	Lake	Elk Horn Cr. Pond			E
Union - 3	Lake	McKinley Lake		E	E
Woodbury - 4	Wetland	Winnebago Bend Lake			E

TABLE B-7
DEPARTMENT'S PRELIMINARY SHORT LIST

Waterbody ID	Reach	Waterbody Name	PS	NPS	UKS
D-001-1		Des Moines R.	M	E	M
D-001-2		Des Moines R.	M	E	M
D-001-3		Des Moines R.	M	E	M
D-001-4		Des Moines R.	M	E	M
D-001-5		Des Moines R.	M	E	M
D-001-6		Des Moines R.	M	E	M
D-032-1		Des Moines R.	M	E	M
D-032-2		Des Moines R.	M	E	M
D-081		Des Moines R.	M	E	M
I-008		Iowa R.	M	E	M
I-009		Iowa R.	M	E	M
I-010-1		Iowa R.	M	E	M
I-010-2		Iowa R.	M	E	M
I-013-2		Iowa R.	M	M	M
I-013-3		Iowa R.	M	M	M
I-016		Iowa R.	M	E	M
I-050-2		Cedar R.	M	M	M
I-050-3		Cedar R.	M	M	M
I-051-1		Cedar R.	M	M	M
I-053		Cedar R.	M	E	M
I-054		Cedar R.	M	E	M
I-061		Cedar R.	M	M	M
I-120		Shellrock R.	M	E	M
K-007-1		Skunk R.	M	E	M
K-007-2		Skunk R.	M	E	M
K-026		S. Skunk R.	M	E	M
N-001-3		Mississippi R.	M	E	M
N-001-6		Mississippi R.	M	E	M
S-026		Nodaway R.	M	E	M
S-036		Nishnabotna R.	M	E	M
W-011-1		Floyd R.	M	M	M
W-011-2		Floyd R.	M	M	M
W-015		L. Sioux R.	M	E	M

TABLE B-10
304(1) (B) CANDIDATE SHORT LIST FACILITY INVENTORY

ID	REACH	NAME	POLLUTANTS	FACILITIES
N-001	07060003001	MISSISSIPPI R	A	J. DEERE-DUBUQUE
N-001	07060005028	MISSISSIPPI R	A	DUBUQUE STP
N-001	07080101003	MISSISSIPPI R	7,17	MONSANTO
N-001	07080101005	MISSISSIPPI RIVER	A	HON INDUSTRIES, GPC, MUSCATINE
N-001	07080101007	MISSISSIPPI RIVER	TRC,A	DAVENPORT STP
N-001	07080101013	MISSISSIPPI RIVER	A	SWIFT DAIRY & POULTRY
N-029	07080101018	MILL CR	30,36	COLLINS
N-007	07080102004	WAPSIPINICON RIVER	TRC,A	UNKNOWN
K-001	07080104001	MISSISSIPPI RIVER	TRC,A	KEOKUK STP, & INDUSTRIES
I-001	07080104012	MISSISSIPPI RIVER	TRC, A	BURLINGTON STP, CASE, ETC.
I-001	07080104048	SUGAR CR (MISS. R. TRIB)	23, 3[illegible], 36, 116, 118	AMAX
K-023	07080105008	CHERRY CR (S.SKUNK TRIB)	23, 25, 26, 30, 32	NEWTON STP, MAYTAG
K-023	07080105018	SOUTH SKUNK RIVER		
K-013	07080107002	LONG CR	30, 36	U.S. ARMY AMMUNITION
K-007	07080107003	SKUNK RIVER	A	UNKNOWN
I-086	07080205037	BLACK HAWK CREEK	TRC, A	HUDSON STP, J. DEERE
I-013	07080208009	PRICE CR (IA R. TRIB.)	23, 25, 26, 30, 32	AMANA REFRIG.
I-032	07080208029	LINN CREEK	26, 30, 31, 32, 34, 36	FISHER CONTROL
D-065	07100003001	DES MOINES RIVER, E BR	23, 33, 138	CONTINENTAL AG CHEMICALS
D-001	07100004001	DES MOINES RIVER	FISH FLESH	UNKNOWN
D-034	07100004019	DES MOINES R	?	UNKNOWN
D-038	07100004039	BEAVER CREEK	TRC, A, ?	URBANDALE SD., GRIMES STP
W-001	10230001021	MISSOURI R	A	KIND & KNOX GELATIN, SIOUX CITY STP
W-001	10230006004	MISSOURI RIVER		
S-019	10280102047	TWELVEMILE CR	23, 26, 32, 33, 36, 138	GREEN VALLEY CHEMICALS

Footnote
1 Pollutants
- A - Wide variety of priority pollutants associated with Category 7
- TRC - Total Residual Chlorine
- 7 - Chlordane
- 17 - Heptachlor
- 23 - Arsenic

TABLE C-2

Significant Publicly-Owned Lakes

Causes Impacting Lakes

Cause Category	Magnitude of Cause					
	High		Moderate		Minor	
	Number	Acres	Number	Acres	Number	Acres
Siltation	78	18,064	12	5,924	4	5,982
Nutrients	29	18,568	71	16,647	0	0
Pesticides	0	0	2	3,018	96	28,243
Organic Enrichment/DO	1	14	5	6,315	10	10,237
Other Habitat Alterations	1	219	0	0	0	0
Oil and Grease	0	0	5	8,054	3	4,160

4. SOURCES AFFECTING LAKES

For all lakes in which the level of use support was determined as "fully supported/threatened", "partially supported", or "not supported", the source(s) impacting the lake were identified. Table C-3 presents the results of this assessment.

As this table shows, agriculture is the major source impacting 91 of these lakes and is a lesser source for six others. As the major source for eleven lakes and a lesser source for eight others, urban runoff is the second most important source impacting Iowa lakes. Only four lakes were assessed as being impacted by sources other than agriculture or urban runoff.

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 14 INFORMATIONAL

SPRING WATER QUALITY STATUS

River water monitoring data for nitrate and trichloroethene (TCE) will be presented for the Des Moines and Raccoon Rivers at Des Moines and nitrate data for the Iowa River at Iowa City and Chariton River downstream of Rathbun Reservoir. Treated drinking water data will be presented where applicable.

Dennis Alt
May 4, 1988

(I21.MIN/sc)

Department's Exhibit 15	Gross' phone log dated 6-12-86.
Department's Exhibit 16	Gross' report dated 8-12-86.
Department's Exhibit 17	Letter from L. Nichols to Jinkinson dated 8-22-86.
Department's Exhibit 18	Gross' memo dated 12-10-86.
Department's Exhibit 19	No exhibit
Department's Exhibit 20	Inspection Report of Sandifer and material safety data sheets
Department's Exhibit 21	University Hygienic Laboratory (UHL) file (21-1 to 21-3)
Department's Exhibit 22	UHL file (22-1 to 22-8)
Department's Exhibit 23	Applehons' Curriculum Vitae
Department's Exhibit 24	Map Webster City and area south
Department's Exhibit 25(a)	Sittig, Handbook of Toxic and Hazardous Chemicals, pp 111-114
Department's Exhibit 25(b)	Id. pp. 805-807
Department's Exhibit 25(c)	Id. pp. 931-932
Department's Exhibit 25(d)	Id. pp. 868-870
Department's Exhibit 25(e)	Id. pp. 412-414
Department's Exhibit 26	Emergency Action Guides Reference Manual (pp.97-102, 693-698, 739-744, 787-792)
Department's Exhibit 27	No Exhibit
Department's Exhibit 28	No Exhibit
Department's Exhibit 29	No Exhibit
Department's Exhibit 30	Soil Survey of Hamilton County, Iowa, Map 16 and Glossary terms
Department's Exhibit 31	Admission denied
Department's Exhibit 32	Admission denied
Department's Exhibit 33	Admission denied

site. Gross noticed some odors in the area so he took some Drager tube air samples. A Drager tube is a small glass tube with a diaghram type pumper. The more pumps you need to color the tube, the less the concentration of the substance you are testing for. Gross tested for benzene hydrocarbon. For benzene, normally two pumps are standard to detect significant concentration. Gross needed to pump the Drager tube more than two times before the tube colored to the first calibration. The Drager tube is highly calibrated because it is designed for indoor use. Gross used the Drager tube to detect relative concentrations, and he concluded that the concentrations of benzene were higher over a hot spot in the site and down wind.
(Testimony of William Gross)

18. On June 3, 1986 Pat Nichols called Al Tompkins and told him they had a bulldozer at the disposal site and had been working for two hours. When the material was exposed, the fire flared up. At the direction of the fire department they removed some of the waste and covered it with earth. Pat Nichols stated that they would remove all of the waste at the Department's direction when the fire was completely out.
(Department Exhibit 12)

19. Gross then took water samples in 3-40 m.l. UHL glass vials from the same location as the May 16 sample, the east toe of the landfill. He put the water samples in the cooler in his car. Gross then took a soil sample from a hot spot on the site using a small clean garden trowel. He placed the soil in a one quart UHL jar. Gross chose the hot spot for his sample site because he thought it was the area most likely to contain contaminants. Gross put the soil sample in the cooler and returned to Mason City. Since it was a Friday, Gross again placed the samples in his office refrigerator over the weekend. On Monday, Gross completed the sample sheet for each sample, placed the samples and the sheets in a cooler, and sent them to UHL via a Purolator Courier.
(Testimony of William Gross)

20. On June 4, 1986 Gross notified Lewis Nichols, by certified mail, of the laboratory results of the May 16 water sample. The results indicated significant levels of benzene, toluene, xylenes, and ethylbenzene (.596,.147,.055, and 0.21 mg/l, respectively) but no styrene. Gross further stated that these substances are listed hazardous substance (40CFR, Part 261, subpart D). Short term health advisories for drinking water (10-day, 10kg child) are .233 mg/l for benzene, 6mg/l for toluenes, 7.8 mg/l for xylenes, and 2.1 mg/l for ethylbenzene. Benzene exceeds the maximum allowable level for drinking water, and the others may exceed maximum levels for longer term exposure. These contaminants are toxic to aquatic life at very low concentrations.
(Department Exhibit 14, 21)

throat, and skin. Acute exposure to high concentrations of styrene may produce irritation of the mucous membranes of the upper respiratory tract, nose, and mouth, followed by symptoms of narcosis, cramps, and death due to respiratory center paralysis. Effects of short term exposure to styrene under laboratory conditions include prolonged reaction time and decreased manual dexterity. Styrene is very slightly soluble in water and lighter, so may be expected to form a floating surface slick that dissolves very slowly. Styrene contained by soil barriers may percolate into soil resulting in spread of contamination.
(Testimony of Dennis Applehons; Department Exhibit 25B,26)

39. Xylene is classified by the EPA as a hazardous substance and a hazardous waste. Xylene is a mobile, colorless, flammable liquid. It is almost completely insoluble in water and lighter, so may be expected to form a floating surface slick. Vapors of xylenes are irritating to eyes, nose, and throat. Acute exposure to xylene vapor may cause central nervous system depression and minor reversible effects upon liver and kidneys. Ingestion of xylenes may result in nausea, vomiting, cramps, headache, kidney and liver injury, coma, and possibly death. Xylene contained by soil barriers may percolate into soil resulting in spread of contamination.
(Testimony of Dennis Applehons; Department Exhibits 25C,26)

40. Toluene is classified by the EPA as a hazardous substance, hazardous waste, and priority toxic pollutant. Vapors of toluene may cause irritation of the eyes, mucous membranes, and upper respiratory tract. High concentrations may cause narcosis and central nervous system depression. Ingestion in significant amounts may result in vomiting, diarrhea, griping, depressed respiration and possibly death. Toluene contained by soil barriers may percolate into soil resulting in spread of contamination.
(Testimony of Dennis Applehons; Department Exhibits 25D,26)

41. Ethylbenzene is classified by the EPA as a hazardous substance and a priority toxic pollutant. It is a colorless liquid with a pungent aromatic odor. It is used in the manufacture of styrene. Significant quantities of ethylbenzene are present in mixed xylenes. Exposure to ethylbenzene may cause irritation of eyes and mucous membranes, headaches, dermatitis, narcosis, and coma.
(Testimony of Dennis Applehons; Department's Exhibit 25E)

42. Upon review of the inspection reports, laboratory results, soil survey, topographical map, and scientific journals, Dennis Applehons concluded that there was the potential for substantial environmental and health hazard to the community from the release of hazardous substances and wastes from the Handi-Klasp disposal site. The contaminants which are moving through the soil pose an environmental threat to the soil, surface water, and ground water. Some people had physical symptoms following the fire, and

"An order under this subsection shall require the person to whom the order is issued to submit to the director within thirty days from the issuance of the order a proposal for carrying out the required monitoring, testing, analysis, and reporting. The director may, after providing the person with an opportunity to confer with the director on the proposal, require the person to carry out the monitoring, testing, analysis, and reporting in accordance with the proposal, which may be modified as the director deems reasonable to determine the nature and extent of the hazard or to remove the hazard.

18. Iowa Code section 455B.411(4)(a) provides:
"Hazardous waste" means a waste or combination of wastes that, because of its quantity, concentration, biological degradation, leaching from precipitation, or physical, chemical, or infectious characteristics, has either of the following effects:
1) Causes, or significantly contributes to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness.
2)Poses a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. "Hazardous waste" may include but is not limited to wastes that are toxic, corrosive or flammable or irritants, strong sensitizers or explosives."

19. Benzene, xylene, and toluene are hazardous wastes. The director received information, i.e. soil and water sample results and neighbor's complaints, upon which he could determine that the release of hazardous wastes from the Handi Klasp disposal site may present a substantial hazard to human health or the environment. Therefore the director is authorized, pursuant to Iowa Code section 455B.416(4)(a) to issue an order requiring the owner or operator of the facility or site to conduct reasonable monitoring, testing, analysis, and reporting with respect to the site to determine the nature and extent of the hazard. Considering the potential damage to the environment and human health, the monitoring ordered by the Department is reasonable.

20. Iowa Code section 455B.109 provides in part that the commission may establish, by rule, a schedule or range of civil penalties which may be administratively assessed. The schedule shall provide procedures and criteria for the administrative assessment of penalties of not more than one thousand dollars for minor violations of 455B or rules, permits or orders adopted or issued under 455B. The commission and director shall consider among other relevant factors:

a. The costs saved or likely to be saved by non compliance by the violator.
b. The gravity of the violation
c. The degree of culpability of the violator
d. The maximum penalty authorized for that violation under this chapter.

21. 567 Iowa Administrative Code 10.2 specifies the criteria for screening and assessing administrative penalties. These critera include 1) costs saved or likely to be saved by noncompliance by the violator; 2) Gravity of the violation; 3) Culpability; 4) the

The Department asserts that the burning of the disposal site resulted in the release into the air, onto the land, and into the waters of the state of "hazardous substances" and that an immediate or potential danger to the public health or safety resulted. In support of this assertion the Department has presented evidence which proves that: 1) A disposal site owned by the companys burned and smoldered; 2) That the burning and the smoldering of the waste deposited in the site resulted in the release of the volatile organic hydrocarbons, benzene, toluene, ethylbenzene, xylene and styrene; 3) That these volatile organic hydrocarbons constitute "hazardous substances"; and 4) That the release created an immediate or potential danger to the public health or safety or to the environment.

The first element, that the companys disposal site burned and smoldered, has not been refuted. The Department additionally asserts that this fire resulted in the release of a number of volatile organic hydrocarbons. The testimony of Mr. Dennis Appelhons, Mr. Dennis Seeger, Mr. Donald Sandifer and, the companys expert, Mr. Ronald Nieman (Tr. 20/1/427), all support this assertion. This testimony is consistent with the substance of the exhibits introduced by the Department, specifically Exhibits #20, 25A-25E, 26 and 34. There has been no evidence introduced which raises a doubt that the burning of wastes contained in the disposal site results

The court in U.S. v. Union Gas Co., 21 ERC 1001 (U.S. D.C. Penn. 1984) found xylene and ethylbenzene to constitute "hazardous substances". These exhibits and the testimony of the Department's witnesses is uncontroverted.

The term "hazardous substances" is defined by 455B.381 and 567--131.1 (IAC) in broad terms and, as is stated, "may" include substances designated by the EPA under various federal environmental programs. The Department, although it is authorized to adopt rules to implement Part 4, "Hazardous Conditions" as necessary to protect public health, is not required to, in this instance, adopt a specific list of "hazardous substances". The definition itself, which includes "mixture of substances", makes this an impossible task in light of the astronomical number of possible mixtures of substances. Also, the very nature of the program, the prevention, abatement and control of the exposure of citizens to substances which create actual or potential dangers to public health or safety dictates that the bureaucratic machinery not be utilized.

Finally, the Iowa legislature does not require that the Department list, by rule, all "hazardous substances". A comparison of this program and the authority to regulate underground storage tanks is enlightening. Part 8, Iowa Code sections 455B.471 to 455B.479 authorizes the Department to regulate underground storage tanks which are used to substantive standard which is imposed upon any company upon the creation of a hazardous condition.

In its attempt to interpret this section, the Department has sought guidance from as many sources as possible, including discussions on similar federal legislation, and the interpretation of that legislation by the courts. Much has been written about section 7003 of RCRA, the section of the Resource Conservation and Recovery Act which provides the EPA with authority to take action when it has evidence that the handling, storage, treatment, transportation or disposal of a solid or hazardous waste "may present an imminent and substantial endangerment to health or the environment". 42 U.S.C. §7003. Out of necessity, the Department will rely primarily upon the court's insights into the meaning of this section. The Iowa Supreme Court in State of Iowa, ex. rel., Iowa Department of Water, Air and Waste Management v. Presto-X Company, docket no. 86-960 (December 23, 1987), page 6, has deemed such a review to be appropriate.

The Department has also considered federal "imminent hazard" provisions enacted by Congress in various environmental statutes. See, Section 1431 of the Safe Drinking Water Act, 42 U.S.C. §300i(a)(1976); Section 504(a) of the Clean Water Act, 33 U.S.C. §1364(a); Section 303 of the Clean Air Act, 42 U.S.C. §7603; Section 106(a) of the

Vertac premises in sufficient quantities to justify a preliminary injunction. On the record, the best that can be said is that the existence of dioxin in the sediment of Bayou Meto, the equalization pond, the cooling pond, and the Jacksonville sewage treatment plant, and in the soil of the Vertac site gives rise to a reasonable medical concern for the public health. The public exposure to dioxin creates some health risk. As much as humanly possible this risk must be removed. We adhere to the view of the Eighth Circuit in Reserve that "the existence of this risk to the public justifies an injunctive decree requiring abatement of the health hazard on reasonable terms as a precautionary and preventive measure to protect the public health." Id. at 520."

U.S. v. Vertac Chemical Corp., 489 F. Supp. supra at 880 and 881.

Specifically with regard to §7003 the court in U.S. v. Vertac ruled:

"As in Reserve we must determine whether "endangerment" within the meaning of the FWPCA encompasses the potential of harm to public health in the decree shown here. As to the meaning of this term, the court in Reserve at p. 529 quoted with approval the following language of Judge Skelly Wright in Ethyl Corporation v. Environmental Protection Agency:

The meaning of "endanger" is, I hope, beyond dispute. Case law and dictionary definition agree that endanger means something less than actual harm. When one is endangered, harm is threatened; no actual injury need ever occur.

* * * * * *

"Endanger," * * * is not a standard prone to factual proof alone. Danger is a risk and so can only be decided by assessment of risk.

* * * * * *

(A) risk may be assessed from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections from imperfect data, or from probative preliminary data not yet certifiable as "fact." (Ethyl) Corporation v. Environmental Protection Agency, No. 73-2205 (D.C. Cir., Jan. 28, 1975) (7 ERC 1353) (dissenting op. at 11, 31-33) (emphasis in original) (footnote omitted).)

It should be observed that the above language is from the panel dissenting opinion, but that on rehearing en banc Judge Wright delivered the majority opinion. Ethyl Corp. v. Environmental Protection Agency. 541 F.2d 1 (8 ERC 1785) (D.C. Cir. 1976), cert. den. 426 U.S. 941 (8 ERC

In addition, as the Department has set out in its Amended Answer the Iowa Legislature provides by Iowa Codes Sections 455E.5(1) and (2) that it is the policy of the state to prevent further contamination of the groundwater and that the discovery of any groundwater contamination shall require appropriate action. Also, the legislature in Iowa Code section 455E.5(6), has determined that the existence of health related groundwater standards, or lack of them, shall not be utilized to defeat the goal of the state to protect the state's water resources. Although the Department is required to adopt rules specifying <u>general guidelines</u> for determining the cleanup actions necessary to protect the water, the absence of these rules <u>shall not be raised as a defense</u> to an order to clean up a source of contamination.

The legislature has also adopted one "standard". Iowa Code section 455E.3(4) provides that any detectable quantity of a synthetic organic compounds in groundwater is unnatural and undesirable. The contaminants identified to be present at the companys site are benzene, toluene, styrene, xylene and ethylbenzene which are all synthetic organic compounds.

The Department, therefore, has shown that a "hazardous condition" exists on the companys property and that the Department is authorized to require the companys to take the actions ordered. These actions, which include the implementation of a site investigation, are reasonable. In fact,

PROCEDURES FOR DETERMINING SECTION 304(1) PRELIMINARY "MINI LIST"

Use impairment due to water quality standards violation from either point and/or nonpoint sources is the basis for inclusion of a stream segment on the preliminary "mini list". As noted in the EPA guidance, the mini list is a subset of the long list.

The DNR's complete preliminary mini list consists of Tables B-5 and B-6. In determining the department's section 304(1) preliminary "mini list", Table B-5, the following steps were taken.

1. From the ambient water quality data gathered for the 305(b) Report, streams (and their segment number) which had monitored water quality standards (WQS) violations for toxic pollutants were listed.

2. As with the long list, three different source categories (PS, NPS, and UKS) noted in the consultant's report were also used in DNR's section of the mini list.

3. Only stream segments with monitored water quality standards violations for toxics from either a point and/or nonpoint source were included. If the assigned source was noted as only UKS (natural) the stream segment was not included in the preliminary mini list. It should be noted that the assigned sources are selected from the chemical monitoring assessment work sheets prepared for the DNR/WBS, not from the combined evaluated/monitored DNR/WBS report.

4. Different assigned sources were grouped into two noted columns; i.e., Point Source (PS), and Nonpoint Source (NPS).

   - PS included industrial and municipal sources.
   - NPS included agricultural and navigational sources.

   THE UKS was not included on this list.

5. Waterbody ID column uses the following notations, X-000-0: where X represents the major river basin code of N = Northeast River basins, I = Iowa-Cedar River basin, K = Skunk River basin, D = Des Moines River basin, S = Southern River basins, and W = Western River basins; 000 represents the stream segment number as noted in the WQS; 0 represents the subsegment number assigned in the WBS.

6. The second grouping noted, Table B-6, is the candidate stream segments generated by the consultant. These stream segments do not have monitored water quality standards violations nor have they been evaluated as nonsupport. As on the candidate long list, the segments with only category 4 noted were deleted from the mini list. Additionally, the consultant and department staff eliminated all category 7 type toxic problems in the candidate mini list. Stream segments are not duplicated between the two sections comprising the preliminary mini list. Additional evaluations will be needed in the future to document inclusion on the final mini list.

TABLE B-8
304(1) CANDIDATE SHORT LIST

ID	REACH	NAME	PS	NPS	UKS
N-001	07060003001	MISSISSIPPI R	E		
N-001	07060005028	MISSISSIPPI R	E		
N-001	07080101003	MISSISSIPPI R	E		
N-001	07080101005	MISSISSIPPI RIVER	E		
N-001	07080101007	MISSISSIPPI RIVER	E		
N-001	07080101013	MISSISSIPPI RIVER	E		
N-029	07080101018	MILL CR	E		
N-007	07080102004	WAPSIPINICON RIVER	E		
K-001	07080104001	MISSISSIPPI RIVER	E		
I-001	07080104012	MISSISSIPPI RIVER	E		
I-001	07080104048	SUGAR CR	E		
K-023	07080105008	CHERRY CR	E		
K-023	07080105018	SOUTH SKUNK RIVER	E		
K-015	07080107002	LONG CR	E		
K-007	07080107003	SKUNK RIVER	E		
I-086	07080205037	BLACK HAWK CREEK	E		
I-013	07080208009	PRICE CR	E		
I-032	07080208029	LINN CREEK	E		
D-065	07100003001	DES MOINES RIVER, E BR	E		
D-001	07100004001	DES MOINES RIVER	E		E
D-034	07100004019	DES MOINES R	E		
D-038	07100004039	BEAVER CREEK	E		
W-001	10230001021	MISSOURI R	E		
W-001	10230006004	MISSOURI RIVER	E		
S-019	10280102047	TWELVEMILE CR	E		

25 - Beryllium
26 - Cadmium
30 - Copper
32 - Lead
33 - Mercury
34 - Nickel
36 - Silver
116 - Benzo(a)pyrene
138 - Iron

TABLE C-3

ASSESSMENT OF SOURCES OF USE IMPAIRMENT FOR SIGNIFICANT PUBLICLY-OWNED LAKES

The number of significant publicly-owned lakes and their total acreage is listed in the table for each source and magnitude of use impairment.

Source	High		Moderate		Slight	
	No.	Acres	No.	Acres	No.	Acres
Agriculture	91	20,197	5	9,822	1	3,847
Urban Runoff	11	14,632	7	3,534	1	812
Land Disposal	1	51	0	0	0	0
Hydrologic/Habitat Mod.	1	219	0	0	0	0
Natural	1	811	0	0	0	0
Other	1	45	0	0	0	0

5. LAKE WATER QUALITY TRENDS

For these lakes, the assessment also evaluated whether water quality was changing and, if so, whether water quality was getting better or worse. The results of this assessment are given in Table C-4.

Table C-4
Lake Water Quality Trends

Water Quality Trend	Number of Lakes	Lake Acres
Degrading	17	3,263
Stable	70	20,817
Improving	5	1,677
Not Determined	22	16,603

6. LAKES AFFECTED BY HIGH ACIDITY

None of Iowa's significant publicly-owned lakes are being affected by high acidity.

C. STATE POLLUTION CONTROL & LAKE PROTECTION/RESTORATION PROGRAMS

Section 6.0 of the main body of the 305(b) report discusses the approach used to control pollution of and to protect and enhance the value of Iowa lakes. Although that discussion was not limited to only the state's

IOWA DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 15 DECISION

REFERRALS TO THE ATTORNEY GENERAL

The Director requests the referral of the following to the Attorney General for appropriate legal action. Litigation reports have been provided to the Commissioners and are confidential pursuant to Iowa Code section 22.7(4).

J. R. Nylen (Sergeant Bluff) - solid waste
Wilton Steel Processing (Wilton) - wastewater/hazardous condition
Don Caraway (Linn County) - flood plain
City of Lynnville - penalty collection/wastewater
City of Mechanicsville - wastewater

Mike Murphy
May 2, 1988

88123DNR0016

Department's Exhibit 34	Meyer, <u>Chemistry of Hazardous Materials</u>
Department's Exhibit 35	Sketch of Handi Klasp-Royal Products property by P. Nichols
Department's Exhibit 36	1 quart UHL glass jar
Department's Exhibit 37	40 m.l. UHL glass vial
Appellant's Exhibit A(1-10):	Photographs of Handi-Klasp dumpsite taken October, 1986
Appellant's Exhibit B(1-11):	Slides of dumpsite taken December 2, 1987

Findings of Fact

1. Handi Klasp Company, Inc, of Webster City, Iowa, has been in operation since 1959. The company's manufacturing process involves the fabrication of steel to make livestock restraining equipment. Royal Products Company, Inc., is located adjacent to Handi Klasp and began operating in 1970. Royal Products was engaged in the manufacture of fiberglass. The raw materials used by Royal Products include gel coat, paste wax, acetone, and styrene monomer. No manufacturing activity has taken place at Royal Products since before April 1986. Lewis Nichols is the owner and president of both companies.
(Testimony of Patrick Nichols, Lewis Nichols)

2. The property upon which Handi Klasp, Royal Products, and the Nichol's residence is located was purchased by Lewis Nichol's father in 1937. There was a small disposal site on the property when it was purchased. Currently the disposal site measures 137 feet long (Southwest to East) 42 feet wide (in the middle) and 40 feet deep (at its deepest point). Initially the disposal site was used for household refuse, leaves and five or six car bodies. Beginning in 1970, it was used for refuse from the manufacturing processes at Royal Products and Handi Klasp. Among the items put in the disposal site are fiberglass trimmings, defective fiberglass parts, rinsed plastic gallon jugs which previously contained catalyst, wadded up cardboard scraps with paint drippings, and a few small pieces of hardened polyester resin and worn out fiberglass molds. These trade wastes were not hazardous when they were disposed.
(Testimony of Patrick Nichols; Lewis Nichols Donald Sandifer)

3. Since 1959, the disposal site was covered twice a year with a foot of clay-type soil which was taken from beneath the topsoil in the area of the landfill. Handi Klasp's custodian would use a caterpiller to compact the soil layer.
(Testimony of Patrick Nichols; Lewis Nichols, Department Exhibit 2)

21. No evidence introduced at the hearing indicated that the Boone River is utilized for drinking water by any neighboring landowners or Webster City. There is a strong possibility that it is used for wildlife watering.
(Testimony of Dennis Applehons; Testimony of Lewis Nichols)

22. On June 12, 1986 Pat Nichols reported that after the fire flared up following excavation, they covered it with dirt. The fire chief advised them to compact the waste in the site, cover it with another foot of dirt, and wait 30 days before reexcavation and removal. Nichols reported there had been no smoke or odors since that day. The Nichols seeded oats on the top of the landfill to prevent erosion.
(Department Exhibit 15; Testimony of Lewis Nichols)

23. On July 9, 1986 Gross received the laboratory results of the second water sample and the soil sample. The second water sample did not contain quantifiable amounts of styrene, benzene, toluene, xylenes, or ethylbenzene. The soil sample contained the following concentrations: Styrene-5000 parts per billion (ppb); Benzene-4600 ppb; toluene-3900 ppb; Xylenes 650 ppb; ethylbenzene 12,000 ppb.
(Testimony of Bill Gross, Department Exhibit 22)

24. On August 1, 1986 Gross visited the disposal site again. He observed water diversion structures had been installed at the disposal site. A drainageway was constructed along the north side of the site. A tile line was installed along the south side to intercept runoff from the south before it reaches the disposal area. During this visit Lewis Nichols told Gross that he had removed approximately ten loads of the earthash mixture from the disposal site to an undisclosed location. Nichols told the other landowner that the waste would not create any problems for him and refused to disclose the location of the waste.
(Testimony of Lewis Nichols, Bill Gross; Department Exhibit 16)

25. By certified letter dated August 12, 1986, Nichols was informed that if the water diversion structures were not effective in preventing water from flowing through the waste, then he would be required to remove all the waste material as directed in Gross' letter of 6-4-86. In addition, Nichols was informed that the waste he removed from the site had the potential to pollute a surface water or ground water of the state and therefore Nichols was directed to reveal the location of the waste, in writing, by August 22, 1986.
(Department Exhibit 18)

26. On August 22, 1986 Lewis Nichols responded in writing that his attorney had advised him that it has not been proven that the waste does in fact contaminate anything and by revealing the disposal location he could possibly subject other people to the same undue harassment they have undergone. Nichols stated that at its present location the waste would not pollute any surface water and if it did, the Department would undoubtedly be notified

if the environmental hazard is left unchecked, more health symptoms could occur in the future. Applehons' risk assessment concluded that further investigation must be done to determine the degree and extent of the contamination. Handi Klasp has estimated the cost of the monitoring wells, testing and analysis required by the Administrative Order to be approximately $40,000 to $80,000. No written estimates were presented at the hearing. Applehons testified that based on his experience with monitoring wells in other clean ups, the cost of four to five monitoring wells and sampling should be approximately $8,000 to $10,000. Applehons could recommend no cheaper alternatives to the monitoring wells. In order to test for environmental and health hazards, recognized methods must be used.
(Testimony of Dennis Applehons)

43. In December, 1986, Lewis Nichols called William Gross and asked him to come to the Handi Klasp property to observe the removal of two underground gasoline tanks. When one of the tanks was removed, Gross felt some of the sand in the area was contaminated with gasoline. However, the tank did not appear to be leaking. Gross concluded the contaminated sand was the result of leakage over the years, and directed the Nichols to remove the sand and spread it out over their parking lot so that volatilization would occur. When the tank was removed, water flowed into the hole, and the water did not seem to be contaminated. The second tank showed no evidence of leaking or contamination.
(Testimony of William Gross, Lewis Nichols)

44. Ronald Nieman, a geologist who has been employed by Eugene A. Hickock and Associates for two years, testified at the hearing for the Appellant. Mr. Nieman has a B.A. degree in Geology, a Masters of Science degree in Landscape Architecture, and is a member of the American Institute of Professional Geologists. He has worked extensively in ground water and coal mining. Prior to his employment with Hickock, Neiman was self-employed as a consultant for seven years and taught high school earth science. Neiman testified regarding proper sampling techniques for volatile hydrocarbons. Nieman was critical of the taking of the first water sample in a quart sample jar instead of 40 m.l. vials and the subsequent transfer of the sample. Nieman was concerned the sample could have been contaminated by hydrocarbons in the atmosphere or on hands during the transfer process. However, Neiman admitted that if the lab had instructed him to transfer the sample he would have done so. Neiman testified that he would have used a tripblank to ensure that the samples did not pick up hydrocarbons between the time they were taken and the time they reached the lab. With regard to a water sample, a tripblank would be a vial of distilled water, placed in the cooler and refrigerator at the same time as the other samples, and transferred to the lab for analysis. If the tripblank's analysis showed the presence of hydrocarbons, then the sampler would know the analysis on his other sample was unreliable. Neiman testified that if he had been handling the sampling, he

maximum penalty authorized for that violation under Iowa Code chapter 455B.5) Whether the assessment of administrative penalties appears to be the only or most appropriate way to deter future violations, either by the person involved or others similarly situated; and 6) other relevant factors.

22. The department assessed a penalty of $1000.00 based on the following factors: $300.00 for the gravity of the violations, $300.00 for culpability, $300.00 for economic savings, and $100.00 for aggravating factors. Although there was insufficient evidence presented to support the violation of Iowa Code section 455B.386 (notification of spill), that particular violation did not seem to be an important factor in the department's assessment of the penalty. It was mentioned only in the context of the gravity of the violation, but further stated "Each of the separate violations could warrant the assessment of the penalty assessed here." The evidence supported the assessment of the $1000.00 penalty for the reasons stated. The violations did and may continue to threaten the Public Health and Safety, or the environment. The willful refusal to provide the information requested by the department and the failure to properly dispose of trade wastes warrant a $300.00 penalty for culpability. The additional $100.00 penalty for aggravating factors is supported by the evidence of the magnitude of the violations.

It is therefore ORDERED that the issuance of Amended Administrative Order 86-SW-23, 86-AQ-15, and 86-WW-41 is Reversed in part in that the alleged violation of Iowa Code Section 455B.386 was not supported by sufficient evidence, and in all other respects is AFFIRMED.

Dated this 15th day of March, 1988.

Margaret LaMarche

Margaret LaMarche
Hearing Officer
Iowa Department of Inspections and Appeals

ML/nlh

cc: Stewart H.M. Lund
Mark Landa

in the release of benzene, toluene, ethylbenzene, styrene, and xylene.

That the release, in this instance, occurred is further supported by the two water samples and one soil sample taken by the Department on May 16, 1987 and May 30, 1987. The companys have attempted to discredit the integrity of those samples but this has not been successful. The evidence introduced shows that the samples were taken according to proper sampling procedures (Don Sandifer, Tr. 2/2/73, Dennis Appelhons, Tr. 8/1/207.) The focus of particular attention by the companys in this regard, the transfer of one water sample from a one quart jar to three 40 ml. vials was shown to be at the re[illegible] of the University Hygienic Laboratory (Bill Gross) and, if anything, resulted in a decrease or volatilization of the com[illegible]ds present in the sample. (Don Sandifer, Tr. 2/2/228, Denn[illegible]er, Dennis Appelhons, Tr. 8/2/290, Bill Gross) By the companys expert's own admission he would have followed such a request from a lab. (Ronald Nieman, Tr. 20/2/23)

The companys raised a number of other concerns about the Department's sampling procedure, none of which, the Department contends, invalidate the sample results. The companys assert that the results should be invalidated because the Department failed to take along a "field blank" during the sampling event. Yet the companys expert testified that it contain "regulated substances". By Iowa Code section 455B.474(7) the Department is required to designate, by rule, those substances subject to regulation. A similar requirement is not found in Part 4 regarding "hazardous substances".

The Department, therefore, asserts that the burning of the waste deposited in the companys disposal site resulted in the release of hazardous substances. The Department further contends that because of the location of this disposal site, in proximity to the Boone River, the natural geology of the area, and the construction of this disposal site these hazardous substances have and will migrate off of the companys property, into the soils and surface and groundwater.

Mr. Dennis Appelhons testified that the topography in the area of the disposal site indicates that the surface and groundwater movement is to the north toward the Boone River. (Dennis Appelhons, Tr. 7/2/110). This testimony is unrefuted. In addition, Mr. Appelhons testified that he was aware of an inspection by Mr. Gross during which Mr. Gross observed the removal of a tank from the companys property and that Mr. Gross observed groundwater seeping into the ten foot excavation. (Dennis Appelhons, Tr. 7/2/212). This, Mr. Appelhons testified, is consistent with his opinion regarding the depth of the groundwater in an area in close

Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §9606 and §7003 of the Resource Conservation and Recovery Act of 1980. In each of the federal imminent hazard provisions cited, Congress used the language "imminent and substantial endangerment" as the standard for triggering agency action and for determining liability. A survey of legislative history of cases and law review articles reveals that the terms "imminent and substantial endangerments" and "emergency" and the situations which the terms describe are interchangeable. Richard B. Skaff in an article in the Harvard Environmental Law Review, refers to all of the legislation referenced here as "emergency provisions" and the authority granted by those provisions as "emergency powers." Skaff, "The Emergency Powers In The Environmental Protection Statutes: A Suggestion For A Unified Emergency Provision", 3 Harvard Envir. L. Rev. 298, 300 (1979). In U.S. v. Wade, 546 F. Supp. 785 (E.D. Pa. 1982) the court refers to §7003 as "the emergency injunctive relief provision". U.S. v. Wade, supra at 2141.

In the case U.S. v. Diamond Shamrock Corp., 17 ERC 1329, 1332 (N.D. Ohio 1981) the court ruled that the imminent hazard provision of RCRA, §7003, "provides for injunctive relief in emergency situations". Also, in a widely quoted discussion of the meaning of the phrase "imminent and substantial endangerment" found in section 1431 of the Clean Water Act, the House Committee Report accompanying the Safe

2200) (1976). In the context of the term "endangerment" as defined in Reserve, the record shows that dioxin is escaping from the Vertac plant site in quantities that under an acceptable but unproved theory may be considered as teratogen.., mutagenic, fetotoxic, and carcinogenic. Such gives rise to a reasonable medical concern over the public health. We therefore, hold that the escape of dioxin into Rocky Branch Creek and Bayou Meto from the plant constitutes 'an imminent and substantial endangerment to the health of persons'."

U.S. v. Vertac Chemical Corp., 489 F. Supp. supra at 885.

U.S. v. Vertac Chemical Corp. is one of the first cases which considered this issue. Since that time this standard has been analyzed and summarized by many courts. In U.S. v. Solvent Recovery Service, 496 F. Supp. 1127, 1139 (D. Conn. 1980) the court stated that §7003 is designed to abate and remedy conditions which constitute imminent hazards to health or the environment but that its focus is "on the prevention and amelioration of conditions, rather than the cessation of any particular affirmative human conduct". In U.S. v. Hardage, 18 ERC 1687 (W.D. Okla. 1980) the court stated that "imminency of a hazard does not depend on the proximity of the final effect, but may be proven by the setting in motion of a chain of events which could cause serious injury" and in Environment Defense Fund, Inc. v. Lanyhier (not reported) (ED. Va. 1982) the court stated that "there is no requirement that protective measures be limited to actions taken after a crisis has arisen or a catastrophic disaster has struck".

all witnesses including the companys expert Mr. Nieman, testified that the next action which should be taken at this site is a more complete investigation. (See Sandifer (Tr. 2/2/135, 3/1/150, Ex. 20), Appelhons (Tr. 10/1/173) and Ronald Nieman (Tr. 19/2/400, 19/2/418, 20/1/6)). Furthermore, the investigation which the Department is requiring is similar to investigations which are conducted by the EPA, by the Department, and by the companys consultant. (Ronald Nieman Tr. 20/1/347).

2. DID A "HAZARDOUS CONDITION" RESULT FROM THE BURNING OF THE HANDI-KLASP COMPANY, INC./ROYAL PRODUCTS COMPANY, INC. DISPOSAL SITE? (RELEASE OF TOXIC AIR CONTAMINANTS)

The Department asserts that the burning of the waste deposited in the disposal site resulted in the release of "hazardous substances" into the atmosphere which created an immediate or potential danger to the public health, safety or to the environment. The Department has presented evidence which indicates that the burning of the wastes deposited in the disposal site resulted in the release of volatile organic hydrocarbons into the air. (Dennis Appelhons, Tr. 10/1/94-150, Don Sandifer, Tr 3/1/100, Dennis Seeger, and Ex. 20 and 34). In fact, as is set out in the Chemistry of Hazardous Materials by Eugene Meyer, Ex. 34:

> "Upon exposure to heat, the various polyvinyl polymers behave quite differently. As they pyrolyse, the different polymers produce fires of a totally different severity.

TABLE B-5
DEPARTMENT'S PRELIMINARY MINI LIST

Waterbody ID	Reach	Waterbody Name	PS	NPS
D-001-1		Des Moines R.	M	E
D-001-2		Des Moines R.	M	E
D-001-3		Des Moines R.	M	E
D-001-4		Des Moines R.	M	E
D-001-5		Des Moines R.	M	E
D-001-6		Des Moines R.	M	E
D-032-1		Des Moines R.	M	E
D-032-2		Des Moines R.	M	E
D-081		Des Moines R.	M	E
I-008		Iowa R.	M	E
I-010-2		Iowa R.	M	E
I-009		Iowa R.	M	E
I-010-1		Iowa R.	M	E
I-013-2		Iowa R.	M	M
I-013-3		Iowa R.	M	M
I-016		Iowa R.	M	E
I-011		Iowa R.		M
I-050-2		Cedar R.	M	M
I-050-3		Cedar R.	M	M
I-051-1		Cedar R.	M	M
I-053		Cedar R.	M	E
I-054		Cedar R.	M	E
I-061		Cedar R.	M	M
I-120		Shellrock R.	M	E
K-007-1		Skunk R.	M	E
K-007-2		Skunk R.	M	E
K-026		S. Skunk R.	M	E
M-001-3		Mississippi R.	M	E
M-001-6		Mississippi R.	M	E
S-014		Thompson R.		M
S-026		Nodaway R.	M	E
S-036		Nishnabotna R.	M	E
S-042		Walnut Cr.		M
W-006		Boyer R.		M
W-011-1		Floyd R.	M	M
W-011-2		Floyd R.	M	M
W-015		L. Sioux R.	M	E

Water Quality Assessment Plan

A. OBJECTIVE

To describe the procedures to be followed by DNR in securing additional data to confirm suspected toxicity problems in each waterbody impacted by a major or significant minor wastewater facility.

B. SCOPE

This assessment plan will be applied to the waterbodies noted on the 304(1) short list suspected of having toxic problems. These suspected waterbodies are those noted on the candidate short list developed by the EPA consultant, Table B-8.

C. DESCRIPTION OF ACTIVITIES

Three different activities will be carried out in securing the needed data. These activites reflect the various bases for suspecting that a waterbody is having toxic problems. (These staff efforts to obtain the needed data are also specified in a work plan submitted to EPA for supplemental funding.)

1. FILE REVIEW

The department will assemble applicable file data on the facilities discharging into the waterbodies falling under categories 7, 9, 10, and/or 11. The data collection will include compilation of existing priority pollutant effluent analysis, bioscreen results, and pretreatment requirements of industrial contributors. The review of the available data will screen the need for additional bioscreen testing or priority pollutant analysis. Initial evaluation of the facilities affecting waters on the short lists are noted in Tables B-9 and B-10.

For many waterbodies, sufficient data to determine the appropriate Individual Control Strategies are thought to exist in DNR files.

2. EFFLUENT BIOSCREENING

The DNR will obtain bioscreening analysis on all screened waterbodies falling under categories 7, 9, 10, and/or 11 of the candidate short list. Screening of waterbodies will use the results of the file review of item 1 above and previous bioscreen results. If previous bioscreens have been performed on the facilities included in the dilutional analysis of categories 9, 10 or 11, the facilities will be dropped from the bioscreening list. The present static bioscreening analysis will be used by the department in evaluating acute toxicity. Associated with positive bioscreening results, priority pollutant analysis will be performed. The results of the bioscreens and pollutant analysis will provide the necessary data to develop appropriate control strategies.

APPENDIX C

LAKE WATER QUALITY ASSESSMENT REPORT

INTRODUCTION

The federal Water Quality Act of 1987 requires that, beginning with the the biennial report due in April 1988, state 305(b) reports must include a lake water quality assessment. The specific information that the report must contain is identified in EPA's Clean Lakes Program guidance, and includes the following:

- the criteria the state uses to determine its significant publicly-owned lakes, and a list of these lakes;
- a discussion of the water quality status and trends of these lakes;
- a discussion of the state's approach to controlling pollution of these lakes, and of the state's plans for protecting and/or restoring these lakes;
- a list of the state lakes impacted by high acidity, and a discussion of the state's plans to mitigate such impacts; and
- data on the physical, chemical, and biological characteristics of those significant publicly-owned lakes in which water quality is being impaired.

This appendix contains the information specified in EPA's guidance, and thus represents Iowa's lake water quality assessment report. Although some of this information has previously been presented in other sections of the 305(b) report, it is also being included in this appendix so that all of the information required in the lake assessment report can be found in a single location, rather than scattered throughout the 305(b) report.

A. CRITERIA & LIST OF SIGNIFICANT PUBLICLY-OWNED LAKES

To be included on Iowa's list of significant publicly-owned lakes, a lake must:

- be maintained principally for public use;
- be capable of supporting fish stocks of at least 200 pounds per acre;
- have a lake surface area of at least 25 hectares (10 acres);
- have a watershed to lake surface area ratio of less than 200:1; and,
- not be a shallow marsh-like lake, a federal flood control impoundment, or be used solely as a water supply reservoir.

Lakes which meet these criteria and thus are on Iowa's list of significant publicly-owned lakes include the 107 lakes listed in the "Clean Lakes Classification Study of Iowa's Lakes for Restoration" (Final Report, August, 1980) plus the seven lakes listed below:

- Meyer Lake, Black Hawk County
- Yellow Smoke Lake, Crawford County
- Little River Watershed Lake, Decatur County
- Frog Hollow Lake (aka Volga Lake), Fayette County
- White Oak Conservation Area Lake, Mahaska County
- Badger Creek Lake, Madison County
- Twelve Mile Creek Lake, Union County.

significant publicly-owned lakes, the state's approach is generally the same for all lakes, whether meeting the criteria for significant publicly-owned lakes or not. As such, the description given in Section 6.C also applies to these lakes.

D. LAKE SPECIFIC INFORMATION

In addition to the data given in the waterbody-specific information separate report "305(b) Assessment Methodology and Waterbody-Specific Information", data on Iowa's significant publicly-owned lakes is given in the following sources:

1. Clean Lakes Classification Study of Iowa's Lakes for Restoration, Final Report, (Bachmann et al, 1980). Information is presented on each of 107 lakes included in classification study, including data on physical features of each lake and its watershed, a bathymetric map of each lake, and results of water quality monitoring done as part of the classification study

2. 1986 Iowa Lakes Study, Report No 87-3, (Kennedy and Miller, 1987b). This report presents results of 1986 monitoring study on the following lakes: Badger, Bob White, Geode, Hendricks, Icaria, Keomah, MacBride, Miami, Wappelo, Nine Eagles, Pierce Creek, Red Haw, Rodgers Park, Twelve Mile, Frog Hollow - aka Volga, and Yellow Smoke. Information presented includes results of 1986 water quality monitoring, updated or new bathymetric maps and results of fish population studies on each lake.

IOWA DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 16 DECISION

CONTESTED CASE APPEAL: HANDI-KLASP COMPANY, INC. AND ROYAL PRODUCTS COMPANY, INC.

On October 7, 1986, and February 13, 1987, the department issued and amended Administrative Order Nos. 86-SW-23, 86-AQ-15, and the department 86-WW-41 to Handi-Klasp Company, Inc. and Royal Products Company, Inc. That action assessed a $1000 penalty and required remedial measures at a disposal site. That action was appealed and the matter proceeded to administrative hearing on October 13, November 3, and December 10 and 21, 1987. The hearing officer issued the Proposed Findings of Fact, Conclusions of Law, and Order on March 18, 1988. The decision affirmed the department's orders.

Handi-Klasp/Royal Products has appealed this order to the Commission. The Proposed Decision, and pertinent documents have been distributed to the Commissioners. The entire record, including hearing tapes and exhibits are available for your review. The parties will be available to argue their respective positions and respond to your questions. You may then affirm the Proposed Decision, or modify or reverse it, substituting your own findings of fact and conclusions of law based on your conclusions from your review of the record and legal argument.

Mike Murphy
Government Liaison Bureau
April 28, 1988

88119DNR0027

4. On March 25, 1986 an employee of Royal Products took hot ashes from a woodburner and placed it in the disposal site. Normally the ashes are put in a different area for four to six months and then deposited in the disposal site. Employees had been informed not to put hot ashes directly into the landfill. Within a halfday the hot ashes started a fire in the disposal site.
(Testimony of Patrick and Lewis Nichols, Department Exhibit 2)

5. The fire in the disposal site smoldered. Patrick Nichols became aware of the fire on March 26, 1986 and called the Webster City Fire Department. The fire department may have initially attempted to put the fire out with water, but quickly discovered that it would have to be smothered. The fire department smothered the fire with dirt. Greg Malmstrom, the director of public works for Webster City, contacted the Mason City field office of the Iowa Department of Water, Air, and Waste Management (now Department of Natural Resources) Malmstrom inquired if there would be a hazard with vapors from burning fiberglass. Al Tompkins of the Department informed him that the fire could produce irritating or poisonous gases. Tompkins said the fire should be put out with CO_2 or dry chemical, not water, and firefighters should remain upwind. Tompkins further stated that the Department would investigate the site for open dumping. Within ten minutes, William Gross of the Department called Lewis Nichols, and Nichols provided Gross with information concerning the fire.
(Testimony of Patrick Nichols, Al Tompkins; Department Exhibit 1,2)

6. The disposal site is approximately one half (1/2) mile from the Boone River. There is no history of the Boone River flooding in the area of the landfill. At the Handi Klasp facility, parts were usually washed in the paint room with LSP-60, a phosphotizer supplied by Madison Chemical Company. The Material Safety Data Sheet for LCP-60 lists one hazardous ingredient, 5% phosphoric acid. Pat Nichols, manager of Handi Klasp, testified that when the paint room was congested they would sometimes wash the parts over a drain in the parking lot. The drain is tiled down over a hill, and the wash water ran into the same ravine as the landfill, but further east. Pat Nichols admitted that there is a creek into which the wash water could flow. Pat Nichols also told Donald Sandifer, E.P.A., that the wash water flows to the creek.
(Testimony of Pat Nichols; Department Exhibit 20)

7. On March 27, 1986, William Gross, Environmental Specialist from Region 2, Mason City, Iowa, notified Lewis Nichols by certified mail that the fire incident was a violation of the State's open burning rules (Rule 900-23.2(455B), Iowa Administrative Code). Gross stated that the rule does not discriminate between intentional and accidental activities.
(Testimony of William Gross, Department Exhibit 3)

and the problem could be dealt with at that time. At the hearing on December 10, 1987 Mr. Nichols refused to disclose the location of the waste he had removed from the disposal site when questioned by the Department's attorney. The hearing officer ordered Mr. Nichols to answer the question, and again he refused and invoked the Fifth Amendment.
(Department Exhibit 17; Testimony of Lewis Nichols)

27. On September 24, 1986 Gross accompanied Donald Sandifer of the U.S. Environmental Protection Agency (E.P.A.) to the Handi-Klasp, Royal Products property. Sandifer is an environmental engineer who has worked for the E.P.A. for seventeen years. Sandifer has his master of science degree in civil engineering with a specialty in construction management and sanitary engineering. From 1982 to December, 1986 Sandifer was responsible for enforcement of the federal Resource Conservation and Recovery Act (RCRA). Sandifer went to Handi Klasp and Royal Products to determine whether the companies should be regulated under RCRA. In order to be a RCRA hazardous waste the waste generated has to meet certain criteria and characteristics. A substance can be hazardous but not be a RCRA regulated waste. As part of his investigation, Sandifer reviewed the material safety data sheets for the various substances used in the manufacturing processes at each company. Sandifer concluded that the companies were not managing or generating a hazardous waste under RCRA from their manufacturing process.
(Testimony of Donald Sandifer; Department Exhibit 20)

28. Sandifer also testified concerning proper sampling techniques for volatile hydrocarbons. Sandifer testified that upon review of the reports, he saw nothing wrong with the Department's sampling techniques in this case. With regard to the transfer of the water sample from the quart jar to the 40 m.l. vials, Sandifer stated that there would be the potential for the escape of volatile matter, which would result in the sample results showing less concentration of contaminants than the original sample.
(Testimony of Donald Sandifer)

29. Dennis Seeger, Chemist III with the University Hygienic Laboratory, (UHL) testified concerning UHL's testing of the water and soil samples taken by William Gross. Although Seeger did not actually do the testing of the samples, he is responsible for assigning the work in the lab and reviewing the lab reports to verify their accuracy. With regard to the first water sample, Seeger testified that the analysis was done properly. Based on the raw data, Seeger concluded that the source of contamination was not a gasoline spill. Seeger also testified that the transfer of the first water sample from a quart jar to a 40ml vial could have an aerating effect and cause a loss of material from the sample.
(Testimony of Dennis Seeger, Department Exhibit 21)

would have taken a third water sample and a tripblank, after the second water sample showed no detectable hydrocarbons. Neiman expected that hydrocarbons would be released into the air and water from smoldering fiberglass. However, Nieman did not feel it was practical to require testing and monitoring of every fire involving fiberglass unless there were unique amounts since there are many such fires and the release is typically short. Neiman personally inspected the Handi Klasp disposal site in December, 1987 and did not observe any hot spots on its surface. (Testimony of Ronald Nieman)

Conclusions of Law

1. Iowa Code section 455B.307(1) provides in relevant part:
" It shall be unlawful for any private agency or public agency to dump or deposit or permit the dumping or depositing of any solid waste at any place other than a sanitary disposal project approved by the director. This section shall not prohibit a private agency or public agency from dumping or depositing solid waste resulting from its own residential, farming, manufacturing, mining or commercial activities on land owned or leased by it if the action does not violate any statute of this state or rules promulgated by the commission or local boards of health, or local ordinances..."

2. 567 Iowa Administrative Code 101.3(2) provides:
" A public or private agency dumping or depositing solid waste shall do so in a manner that creates no public health hazard, nuisance or degradation of surface water or aquifers that are in actual or deemed to be of potential use as a water resource."

3. 567 Iowa Administrative Code 23.2(1) provides that no person shall allow, cause, or permit open burning of combustible materials, except as provided in subrule 567--23.2(2) (Variances) and 567--23.2(3) (Exemptions)

4. Iowa Code section 455B.307(2) authorizes the director of the Department of Natural Resources to issue any order necessary to secure compliance with or prevent violation of Iowa Code sections 455B.301 through 455B.330 and the rules promulgated thereto.

5. As a manufacturer depositing solid waste from its own manufacturing process on land owned by it, Handi Klasp/Royal Products was exempt from the permit requirement of Iowa Code section 455B.307(1). There was no evidence establishing that prior to the fire, the Handi Klasp disposal site created a public health hazard, nuisance or degradation of surface water or aquifers.

The fire at the disposal site, which continued to smolder for a period of at least 78 days, was started by a negligent employee. Although the Nichols had warned employees not to place hot ashes in the landfill, they remain liable for their employee's negligent act, and therefore violated 567 Iowa

BEFORE THE IOWA DEPARTMENT OF NATURAL RESOURCES

DES MOINES, IOWA

IN THE MATTER OF: Handi-Klasp Company, Inc. Royal Products Company, Inc.	BRIEF

STATEMENT OF CASE

This is an appeal of Administrative Order Nos. 86-SW-23, 86-AQ-15, 86-WW-41 issued by the Director of Natural Resources on October 3, 1986 and amended on February 13, 1987. The order alleges that Handi-Klasp Company, Inc. and Royal Products Company, Inc. (hereinafter the "companys") discharged wastewater into waters of the state and navigable waters without a permit, allowed the "open burning" of solid waste, created a hazardous condition as a result of that open burning, disposed of solid waste in a manner which created a public health hazard, nuisance or degradation of surface water or aquifers and disposed of a "hazardous waste" without a permit. The order directed the companys to cease the open burning of waste, cease the disposal of solid waste anywhere other than a permitted disposal facility, advise the Department of the location of the disposal of wastes generated by the companys, conduct a site investigation, cease the discharge of any wastewater to a water of the state without a permit, and to pay a penalty of $1,000.

was his experience that field blanks were not used in every case (Ronald Nieman, Tr. 20/2/168). In addition, a review of the instances when the company's expert did take along a field blank during comparable field investigations, the results of those field blanks were never considered in the expert's reports. This was the case even when the analysis of the field blanks indicated a presence of a greater concentration of contamination than the wells being monitored. (Ronald Nieman, Tr. 20/2/383) In addition, during the course of Mr. Nieman's testimony he refused to testify that the sample results should be invalidated. He merely stated that the water samples were "suspicious" or left something to be desired (Ronald Nieman, Tr. 20/2/99). He did in fact testify that the results should be given some weight in determining what action should be taken now. (Ronald Nieman, Tr. 21/1/26).

Specifically, with regard to the soil sample, the companys expert had no objection other than that the sample was taken in the location of "hot" waste. Testimony from Mr. Sandifer, (Tr. 2/1/430), Mr. Appelhons, (9/1/180, 10/2/168), Mr. Gross, and Mr. Nieman, (Tr. 20/1/408) all indicate that it is acceptable sampling procedure to take a sample in an area thought most likely to be contaminated if the purpose of the sampling is to determine if contamination is present.

proximity to a river. (Dennis Appelhons, Tr. 7/2/300). As Mr. Appelhons explained, these facts are important when determining the direction of the movement of contamination and the vehicle for that transportion. In this instance, Mr. Appelhons testified that the contaminants released during the fire will migrate toward the Boone River and that both surface and groundwater will be the vehicle. (Dennis Appelhons, Tr. 7/2/330).

Mr. Appelhons also testified that the geologic structure of this area, in general, and of the disposal site, specifically, is conducive to the movement of these contaminants off the companys property. (Dennis Appelhons, Tr. 7/2/350 - 450 and 8/1/0 - 126). This testimony was further supported by Soil Survey of Hamilton County conducted by the Soil Conservation Service. (Ex. 30).

There has been testimony that the disposal site was in no way "prepared" prior to the disposal of wastes in the site. (Mr. Pat Nichols, Mr. Lewis Nichols). There has been testimony that periodically over the past few years, soils from the companys property have been used to cover the deposited wastes. (Mr. Pat Nichols and Mr. Lewis Nichols) Mr. Lewis Nichols and Mr. Ronald Nieman characterize those soils as "clay till" (Lewis Nichols, Tr. 19/2/150, Ronald Nieman, Tr. 20/1/141). This characterization is inconsistent with the naturally occurring soils in the area of the

Water Drinking Act, refers to the administrative authority granted by section 1431 as "emergency authority". See, H.R. Rep. No. 1185, 93rd Cong., 2d Sess. 35-36, reprinted in, 1974 U.S. Code & Cong. Ad. News 6454, 6487-88.

Finally, in U.S. v. Reilly Tar & Chemical Corp., 546 F Supp. 1100 (D. Minn. 1982) the court determined the applicability of section 7003, "Imminent Hazard", of RCRA to that case even though it was argued that the facts alleged did not amount to "the sort of emergency situation required for the invocation of a provision meant to deal with 'imminent and substantial endangerments'." U.S. v. Reilly Tar, supra 546 F. Supp. at 1120.

The Department contends, therefore, that if the Director determines that a condition exists respecting any matter which is affecting or is likely to affect the public health he may issue an order requiring action. The fact that the Department may act prior to the receipt of evidence of actual harm was envisioned by the legislature when it passed 455B.388. This section became effective on August 15, 1977, and was amended in 1980. The amendment, which did not effect 455B.388(1), is found in chapter 1148 of the 68 General Assembly, 1980 Iowa Acts. House File 490, the bill pertaining to Iowa Code section 455B.388, describes the act as "An act relating to the control, abatement and prevention of a hazardous condition". Such a condition is defined as

The conclusions drawn from this discussion are in keeping with the legislature's directive to the Department in Iowa Code section 455B.382 that it shall be the agency of the state "to prevent, abate, and control the exposure of the citizens of the state to hazardous conditions. . ." For these reasons, the Department continues to assert that the authority granted to this Department is broad enough to allow for the issuance of orders to compel the abatement or prevention of hazardous conditions and that evidence of an "imminent" endangerment to public health is also sufficient to substantiate the need for an agency action.

In addition, the Department argues that the Department is authorized to require the companys to take action even though specific standards pertaining to "acceptable" levels of contamination have not been established. Such standards do not exist and are established, rightfully, on a case by case basis.

The issue of "standards" was addressed by the Congress and the Iowa legislature in 1986 and 1987, respectively. In 1986 the Comprehensive Environmental Response Compensation and Liability Act of 1980 was reauthorized by the signing of the Superfund Amendments and Reauthorization Act of 1986 (SARA). In reauthorizing the statute, one of the key problems Congress confronted was establishing strong but workable cleanup standards for "Superfund" sites. The lack

Polyvinyl chloride is generally considered to pose the least fire hazard. Exposed to high temperatures, polyvinyl chloride produces copious quantities of hydrogen chloride, which tend to act as a fire suppressant. However, hydrogen chloride causes serious destructive damage to the mucous membranes. Particulates in smoke from chlorinated polymers can transport gaseous hydrogen chloride. Hydrogen chloride deposited on soot and water particles can bypass the body's upper respiratory mucous membranes where is it normally stopped, and thereby reach the lungs. Once in the lungs, hydrogen chloride can cause pulmonary edema, often a life-threatening condition. These toxicological properties of hydrogen chloride can easily outweigh the benefit achieved from its fire-suppressant nature.

The heating of some polyvinyl polymers forms an appreciable amount of the monomer. This is especially noticeable in the case of polystyrene, although methane, ethane, ethylene, benzene, toluene, and ethyl benzene are also formed. Under optimum conditions the yield of sytrene from the thermal degradation of polystyrene is almost quantitative. Polystyrene is generally considered to present the greatest fire hazard of the polyvinyl polymers. Furthermore, the toxicological factors of smoke originating in polystyrene fires are considerable."

Chemistry of Hazardous Materials pp. 287-289.

The release of these hydrocarbons into the air was also admitted to result from the burning of the fiberglass wastes by the company's expert Mr. Nieman (Tr. 20/2/17).

It is not clear for how long the disposal site burned. Testimony indicates that the fire started on March 25, 1987. (Mr. Lewis Nichols, Ex. 1) Subsequent inspections, telephone conversations and complaints indicate that it was still burning on May 16, 1987, (Ex. 4), May 27, 1987, (Ex. #5 & 6), May 30, 1987 (Ex. 7 & 10), June 3, 1987 (Ex. #12), and June 4, 1987. At the very least, during these days, "hazardous substances" were being released from this site into the atmosphere. On each of these days, and most certainly on May 29 and 30, 1987, an immediate or potential d[illegible] to the public health or safety and the environment was c[illegible]ated.

On May 29 and 30, 1987 residents 1/4 to 1/2 mile east of the companys complained to Mr. Greg Malmstrom, Webster City Administrator, of noxious fumes eminating from the company's property. (Ex. 8 and Al Tompkins) One individual, Mrs. Ken Belamy, complained that during the day and evening of May 29, 1987 colorless noxious vapors had penetrated her home causing her eyes to water and that the vapors caused everyone in the house to get a headache. (Ex. 7)

These symptoms are consistent with the harmful effects and symptoms from the exposure to the volatile organic hydrocarbons released from the burning of the wastes at the companys disposal site. (Ex. 25A - 25E, 26 and 34) Although the exact extent of exposure is unknown, the fact that symptoms were felt indicates that an acute exposure was experienced.

The testimony of Mr. Appelhons, which was uncontroverted, (Tr. 10/1/94-140), and exhibits 25A - 25E, 26 and 34 indicate that the residents near the disposal site at all times during the burning, particularly on May 29 and 30, were subject to potentially dangerous concentrations of benzene

4. DOES THE WASTE DISPOSED OF BY HANDI-KLASP COMPANY, INC./ROYAL PRODUCTS COMPANY, INC. CONSTITUTE A "HAZARDOUS WASTE"?

The Department has presented uncontroverted evidence that the waste disposed of in the companys disposal site currently presents, or may present, a danger to the public health or safety or the environment. (Appelhons Tr. 9/2/2[illegible]) The waste therefore, meets the definition of "hazardous waste" pursuant to Iowa Code section 455B.411(1).

Although this waste arguably was not a hazardous waste at the time of its disposal, this waste, as a result of the fire, has been physically and chemically altered. Uncontroverted evidence has shown that the fire resulted in the release of benzene, toluene, ethyl benzene, styrene, and xylene from these plastics. Each of these substances poses a substantial present or potential hazard to human health or the environment. Each is toxic. (Appelhons Tr. 9/1/176, 256, 278, 290, 301). Also, Don Sandifer of EPA testified that it is possible that a waste, when disposed of, is not a hazardous waste but through a physical or chemical change it becomes such a waste. (Sandifer Tr. 2/2/302).

The Department also contends that this waste constitutes a waste which, during the course of the fire, was a "reactive" waste as that term is defined by 40 C.F.R. §261.23.

that by revealing the location "other people" could be subject to harassment. (Exhibit 17)

Whether Mr. Nichols understood it at the time or not, by removing the waste and disposing it as he did on property neither owned or leased by the companys he was violating Iowa law. In addition, the person or persons who agreed to allow the disposal on their property are in violation of Iowa Code section 455B.307.

The Department is authorized pursuant to Iowa Code sections 455B.103(4) to conduct investigations deemed necessary to determine compliance with Iowa Code chapter 455B and the rules of the Department. The Director is also authorized to issue orders necessary to secure compliance with or prevent a violation of part 1 of division IV or the rules of the Department.

The Department's questions to Mr. Nichols regarding the location of disposed of wastes, particularly in light of his indication that the disposal was in violation of 455B.307(1), is a part of a statutorily authorized investigation. These questions were posed to Mr. Nichols prior to issuance of the Order, after the Order was issued, and during the contested case proceeding.

NATURAL RESOURCES, DEPARTMENT OF (561)
Adopted Rule

Pursuant to the authority of Iowa Code sections 455A.4, 17A.3 and 17A.7, the Director of the Department of Natural Resources adopts new Chapters 4, "Agency Procedure for Rule Making," and 5, "Petitions for Rule Making," Iowa Administrative Code. Notices of intended action were published in the March 9, 1988, IAB, as ARC 8494 and 8495. This rule is identical to that published in the notices, except for correction of numbering in internal cross-references in Chapter 5. The rules adopt the uniform rules.

These will become effective on July 6, 1988.

ITEM 1. Adopt a new chapter 561--4(17A), as follows:

CHAPTER 4
AGENCY PROCEDURE FOR RULE MAKING

Insert the agency procedure for rule making segment of the Uniform Administrative Rules which are printed in the front of volume I of the Iowa Administrative Code, with the following amendments:

The agency contract for 4.5(1), 4.6(3), 4.11(1) or other unspecified rule making matters is the Government Liaison Bureau, Coordination and Information Division, Department of Natural Resources, 900 East Grand Avenue, Des Moines, Iowa 50319-0034, phone 515/281-8941.

Amend 561--4.4(17A) "Notice of proposed rule making," subrule .4(3), by inserting in place of the last phrase "(specify time period)," the phrase "one State Fiscal Year (July 1 to June 30)" and adding a new sentence, "Subscriptions must be renewed annually by June 15."

The only "narrowly tailored" rules at this time are those specified in 567--62.2(455B).

Amend paragraph "a" of subrule 4.13(2) by inserting the words "Reference to" in place of "Copies of."

ITEM 2. Adopt a new chapter 561--5(17A), as follows:

CHAPTER 5
PETITIONS FOR RULE MAKING

Insert the petitions for rule making segment of the Uniform Administrative Rules which are printed in the front of volume 1 of the Iowa Administrative Code, with the following amendments:

The agency contact for 5.5(1), 5.6(3), 5.11(1) or other unspecified rule making matters is the Government Liaison Bureau, Coordination and Information Division, Department of Natural Resources, 900 East Grand Avenue, Des Moines, Iow[illegible]319-0034, phone 515/281-8941.

The agency name is Iowa Department of Natural Resources.

May 6, 1988

Larry J. Wilson, Director

(4-5RD)

and the other hydrocarbons which were released. The fact that the threshold limit value for benzene is 1 ppm, or 1/25 of what is identifiable by smell, indicates the extent of the potential harm which resulted.

The Department has previously discussed the nature of the volatile organic hydrocarbons and their toxicities. (Brief pages 8 and 9 and Ex. 25A - 25E and 26). As was concluded there, these substances are all "hazardous substances" as that term is defined in Iowa Code section 455B.381(1). The Department, furthermore, asserts that there were a number of separate "hazardous conditions" which were created as a result of the release of air toxics during the course of the fire. These incidents correspond to the receipt of complaints from neighbors about these releases. The companys, in each of these instances, failed to notify the Department as is required by Iowa Code section 455B.386. The Department argues that because of the nature of the release, the release of hazardous substances, and the extent of the exposure of the neighbors a substantial penalty should be assessed for this violation.

This violation is particularly grave in light of the information which was available to the companys. Each of the MSDS which pertain to raw materials utilized for the fabrication of plastics relates that hazardous products such as toxic materials, carbon dioxide and carbon monoxide and

Specifically, the Department has shown that as the waste burned, when mixed with water, it generated toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment. As such the waste meets the definition of "hazardous wastes" set forth in 40 C.F.R. § 261.3(a)(2)(i) as adopted by reference by the Department, 567--141.2(1) (IAC).

The Department, therefore, asserts that Iowa Code section 455B.416(4) also applies to this matter. The companys are, therefore, required to conduct reasonable monitoring and testing to determine the nature and extent of the hazard associated with the fire at the disposal site.

5. DID THE DISPOSAL OF THE WASTES GENERATED BY THE COMPANYS AT THE SITE CONSTITUTE A VIOLATION OF IOWA CODE SECTION 455B.307?

Iowa Code section 455B.307 provides that a private agency may dispose of waste which it generates upon land which it owns or leases "if the action does not violate any statute of this state or rules promulgated by the commission or local boards of health, or local ordinances".

Subrule 567--101.3(2) (IAC) provides that a private agency may dispose of solid waste in a manner that creates no public health hazard, nuisance or degradation of surface

The Department has moved that its request for information be enforced. Generally such a request for information will be enforced where: (1) the investigation is within the agency's authority; (2) the request is not too indefinite; and (3) the information requested is reasonably relevant. United States v. Powell, 379 U.S. 48, 85 S.Ct. 248, 13 L.Ed.2d 112 (1964); United States v. Morton Salt Co., 338 U.S. 632, 70 S.Ct. 357, 94 L.Ed. 401 (1950); Oklahoma Press Publishing Co. v. Walling, 327 U.S. 186, 66 S.Ct. 494, 90 L.Ed. 614 (1946); EEOC v. A.E. Staley Mfg. Co., 711 F.2d 780, 783 (7th Cir. 1983), cert. denied, ___ U.S. ___, 104 S.Ct. 1907, 80 L.Ed.2d 456 (1984) (and cases cited therein); and United States v. Deak-Perera & Co., 566 F.Supp. 1398 (D.D. C.1983).

In United States v. Morton Salt Co., supra, the Supreme Court upheld the Federal Trade Commission's request for information from Morton Salt. It stated in that regard:

> "The only power that is involved here is the power to get information from those who best can give it and who are most interested in not doing so. Because judicial power is reluctant if not unable to summon evidence until it is shown to be relevant to issues in litigation, it does not follow that an administrative agency charged with seeing that the lawc are enforced may not have and exercise powers of original inquiry. It has a power of inquisition, if one chooses to call it that, which is not derived from the judicial function. It is more analogous to the Grand Jury, which does not depend on a case or controversy for power to get evidence but can investigate merely on suspicion that the law is being violated, or even just because it wants assurance that it is not. When investigative and accusatory duties are delegated by statute to an administrative body, it, too, may take steps to inform

STATE OF IOWA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION COMMISSION

RESOLUTION

WHEREAS, the Environmental Protection Commission recognizes the many years of service by **E. Ann Frenzen Wickert** to the State of Iowa as a member of the Solid Waste Commission, the Environmental Quality Commission, and the Water, Air and Water Management Commission, and

WHEREAS, the Commission further recognizes the many years of public service by **E. Ann Frenzen Wickert** at all levels of government, and

WHEREAS, the Commission has knowledge of the high quality of **E. Ann Frenzen Wickert's** life as a wife, mother, businessperson, friend and citizen; but regrettably notes her passage.

THEREFORE BE IT RESOLVED, that by this resolution her many contributions to the State of Iowa be officially recognized and memorialized in the public records of the Iowa Department of Natural Resources and the State of Iowa.

Adopted at Des Moines this 17th day of May in the year of our Lord One Thousand Nine Hundred Eighty-eight by the Environmental Protection Commission.

Robert Schlutz
Charlotte Mohr
Donna Hammitt
Nancylee Siebenmann
Clark Yeager

Richard Timmerman
Catherine Dunn
Gary Priebe
Keith Uhl

various hydrocarbons will result upon decomposition. (Ex. 20) This information, if it was considered, was dismissed, as was evidenced by the company's lack of concern during this entire matter. (Ex. 6 & 17)

3. DID THE ACTIVITIES OF HANDI-KLASP COMPANY/ROYAL PRODUCTS COMPANY, INC. RESULT IN A "PROHIBITED DISCHARGE"?

Iowa Code section 455B.186 provides that a pollutant shall not be disposed of by dumping, depositing or discharging such pollutant into any water of the state unless the discharge is pursuant to a permit issued by the Department. In addition, subrule 567--62.1(1) provides that the discharge of any pollutant from a point source into a navigable water is prohibited unless it is authorized by an NPDES permit.

The Department has identified two discharges which it asserts violate both 455B.186 and 567--62.1(1). They are, the tile discharge which results from the cleaning of parts over a lot drain and the leachate which is discharged from the disposal site.

Mr. Lewis Nichols, Mr. Pat Nichols, Mr. Bill Gross and Mr. Jon Sandifer (Tr. 2/2/419) each testified that as a part of the process of cleaning fabricated metal items, these items were sprayed with a cleaning agent compound LCP-60. (Ex 20, water or aquifers that are in actual or deemed to be of potential use as a water resource. The Department has shown that the disposal of the companys wastes in its on-site disposal site has resulted in the creation of a public health hazard. This hazard is in the form of a surface and a groundwater contaminant source and, while it was burning, of a significant air contaminant source. This hazard is magnified by the presence and release of a known human carcinogen, benzene, and other toxic substances. In addition the disposal has resulted in the degradation of surface and groundwater.

6. DID THE BURNING OF THE DISPOSAL SITE CONSTITUTE "OPEN BURNING"?

Much has been made of the fact that the fire at the disposal site began as a result of the unfortunate actions of an employee. This action was, arguably, an accident. However, as Mr. Appelhons testified, the continued burning of this waste for approximately two months, was no accident and it was, in fact, allowed to continue because of the inaction of the companys.

Subrule 567--23.2(1) provides that no person shall allow, cause or permit open burning. As the Department's exhibits indicate, upon being notified of the fire on March 26, 1986 the Department contacted the companys to determine if it had itself as to whether there is probable violation of the law."

U.S. v. Morton Salt Company, supra, 94 L.ed. at 410.

The Department asserts that its request is reasonable, it is definite and is within the agency's authority. For these reasons the Department's request that the company's divulge the location of the disposal of solid waste taken from the disposal site by Mr. Nichols be upheld.

Respectfully submitted,

Mark Landa

Mark Landa
Department of Natural Resources
900 East Grand Avenue
Henry A. Wallace Building
Des Moines, IA 50319

cc: Steward Lund

MSDS). The items were then rinsed to remove the agent. This rinsing is done either inside a building or outside over a lot drain. (Ex. 20, Pat Nichols, Lewis Nichols) Don Sandifer testified that the washing of these parts outside, over the lot drain, was the method of choice during certain kinds of weather because ventilation was better. (Sandifer Tr. 2/2/419) and because of space limitations (Sandifer Tr. 3/1/1). Mr. Sandifer also testified that the discharge was into a creek along company property. (Sandifer Tr. 3/1/10, Ex. 20, p. 3).

Mr. Lewis Nichols testified that the companys have not obtained a permit for this discharge. The discharge is a "pollutant" as that term is defined by Iowa Code section 455B.171(13) and the creek into which the "pollutant" is discharged constitutes a "water of the state" as that term is defined by Iowa Code section 455B.171(9). For these reasons this discharge constitutes a violation of 455B.186. This is also a discharge of a "pollutant" from a "point source" as that term is defined by 455B.171(12) into a "navigable water" as that term is defined by 40 C.F.R. 401.11 and, therefore, the discharge, without an NPDES permit, is in violation of 567--62.1(1).

In addition to the discharge described above, the Department has presented evidence that leachate has emanated and will emanate from the disposal site into the creek. This been extinguished. The Department was informed that the fire was out. (Ex. 2). During an inspection conducted on May 16, 1986 the Department observed that the fire was not out. (Exhibit 4) It was only after many complaints from neighbors (Exhibits 5, 7, 8) and many contacts by the Department with the companys (Exhibits, 4, 6, 10, 12, 14) that the companys extinguished the waste.

This evidence indicates that for a period of time between the start of the fire and the May 16, 1986 inspection the companys allowed or permitted the dump site to burn and that, thereafter, until it was extinguished. The companys were responsive onl after many contacts from the Department. This evidences a violation of 567--23.2(1) (IAC).

As is stated in the case Vermont v. Waterbury, 2 ERC 1111, 1113 (Ver. 1970):

> "Looking back at the Speyer case, which came down at a time when the germ theory of disease was still a recent concept, a laudable demand that the necessity for drastic curtailment of current practices be more fully demonstrated is understandable. Yet given the background of general knowledge possesed by courts and citizens today, the result reached in that case would be incomprehensible. The lesson seems plain that, in reviewing measures for the preservation of public health and, indeed, for the protection of the ability of humankind to survive, more regard must be had for the cumulative consequences of human activity. We are just now commencing to understand that we are beginning to suffer the ecological consequences of human activities formerly regarded as harmless and previously determined ineligible for regulation. In 1892, certainly, it had not been demonstrated that the needs of future generations were menaced enough to require restraints on the non-criminal but deletorious physical activities of individuals or industries.

IOWA DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION COMMISSION

ITEM 17 DECISI...

RULE ADOPTION: CHAPTERS 4 AND 5

The Commission is requested to adopt the attached rules dealing with rule making procedures and petitions for rulemaking. The Commission will be adopting by reference department rules, which in turn adopt by reference uniform agency rules prepared by the Governor's Task Force on Uniform Rules. This procedure of adoption by reference has been recommended by the State government authorities over agency rules. This Commission approved notices of intended action in February and no comments were received during the public notice period. There are no changes from the proposed rules, other than correction of a numbering error.

Mike Murphy
Government Liaison Bureau
April 19, 1988

88110DNR0007

leachate has been analyzed and has been demonstrated to contain benzene, toluene, ethylbenzene, styrene, xylene and chlorobenzene. (Ex. 21 and 22 and testimony of Dennis Seeger) It has been shown that these contaminants were released as a result of a fire in the disposal site. Such a discharge is also a violation of 455B.186 and 567--62.1(1).

The Department contends that the leachate discharge into the creek and ultimately into the Boone River constitutes a discharge from a "point source". This term is defined by Iowa Code section 455B.171(12) to mean any discernible, confined and discrete conveyance including any pipe, ditch, channel and discrete fissure from which pollutants are or may be discharged. That this discharge constitutes a "point source" as a matter of law is set forth in the cases Sierra Club v. Abston Construction Co., 620 F2d 41 (5th Cir. 1984), United States v. Oxford Royal Mushroom Products, 487 F. Supp. 852 (E.D. Pa 1980) and United States v. Earth Sciences, Inc. 599 F2d, 368 (10th Cir. 1979). That the stream into which the pollutant leachate is discharged constitutes a "navigable water" as a matter of law is set forth in the cases Quivira Mining Company v. U.S. EPA, 765 F2d 126 (10th Cir. 1985), U.S. v. Phelps Dodge Corporation, 391 F. Supp. 1181 (D. Ariz. 1975) and U.S. v. Holland, 373 F. Supp. 665 (M.D. Florida 1974)

The regulations regarding open burning themselves are well designed to avoid unreasonable hardship. Starting with the proposition that smoke is an air contaminant as the statute states (10 V.S.A. §352(1), measures to eliminate it where it is not shown to be necessary are certainly supportable on public health grounds. Land fill dumps are purposeful attempts to avoid that kind of contamination, and the regulations forbid burning there unless some overwhelming necessity, as yet uncorrected exists. This is reasonable regulation, and the people of the State of Vermont, or their neighbors, are not required to be burdened with polluted air to any measure, if the burning is unnecessary. Combustion by-products are so seldom attractive air additives that the burden must be on the burner to establish their harmlessness."

7. IS MR. NICHOLS REQUIRED TO DIVULGE THE LOCATION OF WASTES REMOVED FROM THE COMPANYS PROPERTY?

Mr. Lewis Nichols is the President and owner of the companys. He has testified that he has personally removed waste which was deposited at the site and has taken it to another site. He refuses to divulge the location of that waste.

As has been stated, Iowa Code section 455B.307(1) prohibits the disposal of solid waste at a location other than a permitted sanitary landfill with one exception, a private agency may dispose of waste which it generates upon property which it owns or leases. Although Mr. Nichols refuses to divulge the location of the recent disposal activity it may be inferred from his statements that it is upon property which the companys neither own or lease. He has stated that he will not reveal the location of the disposal because "he has given his word to the owner" (Exhibit 20, p. 1) and

ENVIRONMENTAL PROTECTION COMMISSION [567]
Adopted Rule

Pursuant to the authority of Iowa Code sections 455A.6, 455B.105, 17A.3 and 17A.7, the Environmental Protection Commission of the Iowa Department of Natural Resources hereby adopts new Chapters 4, "Agency Procedure for Rulemaking," and 5, "Petitions for Rulemaking." Notices of intended action were published in the March 9, 1988 IAB as ARC 8492 and 8493. The Commission adopts 561--Chapters 4 and 5, Iowa Administrative Code by cross-reference, which were published in full in the June 1, 1988 IAB as ARC ___.

These rules will become effective on July 20, 1988.

ITEM 1. Adopt a new 567--Chapter 4, "Agency Procedure for Rulemaking," as follows:

567--4.1(17A) Adoption by reference. The commission adopts by reference 561--Chapter 4, Iowa Administrative Code.

ITEM 2. Adopt a new 567--Chapter 5, "Petitions for Rulemaking," as follows:

567--5.1(17A) Adoption by reference. The commission adopts by reference 561--Chapter 5, Iowa Administrative Code

ITEM 3. Rescind 900--Chapter 5, Iowa Administrative Code.

____
Date

____
Larry J. Wilson, Director

(EP4A.MIN/sc)